The UNESCO Courier

A window open on the world

November 1965 (18th year) Price: 50 cents

THE UNIVERSITY OF MICHIGAN
DEC 16 1965
PERIODICAL READING ROOM

Menace of the Art Thieves

UNICEF

WONDERS OF THE BUSH

In this painting by the Senegalese artist, Papa Ibra Tall, an uncle supports his young nephew high on his shoulders as he introduces him to the plants, the birds, and other wild life of the bush. Entitled, "Wonders of the Bush", it is one of the designs contributed by artists from many lands to the United Nations Children's Fund, for reproduction on UNICEF greeting cards in 1965 (see page 32). Papa Ibra Tall grew up in Tivaouane, a well-known Senegalese centre for handicrafts, and later studied in France. An artist of great versatility, whose work ranges from ceramics and tapestry designing to painting and sculpture, he now heads the Plastic Research Section of the Dakar Art School.

The UNESCO Courier

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1965 ★ INTERNATIONAL CO-OPERATION YEAR ★

Page

4 **THIEF-PROOFING OUR ART MUSEUMS**
By Richard LeBlanc

8 **INTERPOL**
A world-wide warning system against stolen art

11 **MONA LISA ON THE MOVE**
V.I.P. protection par excellence

14 **57 PAINTINGS LOST IN ONE ROBBERY**

16 **HAVOC WROUGHT BY VANDALS**

18 **CONFRONTING THE IRASCIBLE IRAZU**
By Haroun Tazieff

24 **DISMANTLING ABU SIMBEL**
By Louis A. Christophe

30 **WORLD CONGRESS ON ILLITERACY**

31 **FROM THE UNESCO NEWSROOM**

32 **UNICEF GREETING CARDS**

34 **LETTERS TO THE EDITOR**

N° 10 - 1965 MC.65-1-207 A

René Caloz

Cover photo

Among the thousands of masterpieces that have survived the centuries, their beauty still intact, is this magnificent statue on the Puerta Santa of the Cathedral of Santiago de Compostela, Spain, which dates from the twelfth century. But masterpieces of beauty are far too often exposed to theft or vandalism. Stricter protection of museums and monuments open to the public is needed today when modern techniques can facilitate surveillance. (See Page 4).

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THIEF-PROOFING OUR ART MUSEUMS

by Richard LeBlanc

It was a quiet afternoon. The citizens of Florence strolled in the streets of their lovely city. And art-lovers flocked to the Uffizi museum to view the rich collection of Italian Renaissance paintings. But drama struck that day in one of the modern art rooms. To the consternation of the crowd collected around a painting of Morandi, the picture suddenly fell from the wall with a crash. Upon inspection, the authorities were dumbfounded to find scrawled on the back of the canvas: "Thank you. I have always liked Morandi." And the date of the theft was added. For theft it was; the painting that had been hanging for weeks in that spot was a reproduction.

And the newspapers had another headline.

IT is generally agreed that one of the happier explosions taking place today is the increasing interest in matters cultural. Symphony orchestras are playing to full houses, theatres are enjoying long runs, and museums are reporting ever-increasing crowds. Critical publications have subscription lists almost as long as the popular reviews Even the commercial cinema has done its part with film biographies of artists and musicians.

However, there is another side to the coin. Too many people have become too well aware of an artist's work through the headlines: ANOTHER PAINTING STOLEN; POLICE HUNT ART THIEF; RANSOM DEMANDED FOR FAMOUS CANVAS. Too many who had never heard of

This "Adoration of the Shepherds" weighs 100 lbs (45 kg). It was stolen from the Basilica in Saint-Denis, near Paris, one night in December 1963. A 17th Century altar front in gilt vermeil, it measures 9 ft 10 ins by 2 ft 5 ins (3 m by 75 cm). This splendid work is still missing.

Goya before, have been able to discourse learnedly on the value of his "Duke of Wellington" since the painting was stolen from the National Gallery in London in 1961. And there are those who insist that the Louvre's "Mona Lisa" by Leonardo is the more interesting (though hardly on purely aesthetic grounds) for having been the victim of a sensational theft just over fifty years ago.

Art is very much in the news, then. But the real irony behind this boom is the danger to a museum's art treasures, a danger which lies in direct proportion to the rise in public interest. As countries make a greater effort to display more works to a wider public, the shortcomings of the museums become dramatically evident. Too few of them increase the size of their staffs adequately, still fewer the quality. A large European museum recently opened 28 new rooms of art treasures, but not one extra guard was hired to oversee and protect the new material. This, of course necessitated a greater dispersion of the existing guards.

This inadequacy in buildings and protective systems is reflected in the increase in art theft as an industry. It is said that in the United States alone three or four art objects are stolen every day from museums.

The problems of a museum are greatly increased by the soaring value of works of art. If a painting by a modern artist can sell for as much as $50,000, its attraction to a thief is obvious.

Most stolen paintings are recovered, however. In one six-week period of 1961, 65 canvases were stolen—besides the aforementioned Goya—in both England and France. All but one have been restored to their places of origin. Some thieves are apparently unaware that police organizations the world over are given all details of a major art theft and go to work immediately. Other thieves, who have done their homework, realize that it is nearly impossible to sell a recognized work. The normal procedure in such a case is to demand a ransom for the picture—a ransom which is all too frequently paid. Still other criminals, more timorous perhaps, merely abandon their treasures in the face of so much pressure.

Of course, in the case of other art objects, different procedures can be used. Jewellery obviously lends itself to the diamond cutter's art and can be reduced to readily saleable cut stones. And sculptures can be and often are, melted down, even if only to recover the intrinsic value of the metal itself.

There are known cases where whole paintings have been carefully cut up into smaller sections—either for attempted resale as a verifiable piece of a famous work or merely for sale to the type of person who would rather have a section of a celebrated painting than nothing at all.

Tapestries fall into the same melancholy category and are frequently dismembered for piecemeal resale to the unscrupulous.

The team that makes life so miserable for art thieves is the International Criminal Police Organization—known as Interpol. It is Interpol that distributes reports on such thefts to every major police force in the world, giving all the

CONT'D ON NEXT PAGE

Security expensive ?... Not the morning after

pertinent data that may lead to recovery of the object. This process has proved particularly effective in blocking resales, since most pictures are taken for disposal to countries other than those they were stolen from.

But Interpol is also aware of the high value of an ounce of prevention; how much simpler it would be if the thief never managed to get away with that canvas.

To this end the International Council of Museums (ICOM) has been working with Interpol since 1957. The Council, an organization subsidized by Unesco, has given special attention to the protection of museums against thefts. In January of 1957 it asked Interpol to undertake a study that would emphasize the preventive aspect, rather than recovery, and would stress the combinations of human beings and mechanical devices that might best discourage any attempt at theft, or at least catch the thief before he could leave the premises.

The results of this study have been published by Unesco* in the quarterly magazine "Museum." The article was written by Mr. André Noblecourt, chairman of the ICOM Sub-Committee on Security in Museums and a technical adviser on security to the museums of France.

Between the Interpol report and Mr. Noblecourt's article, countries the world over were approached and asked to contribute to the sum of knowledge on the subject. The response was heartening. The presidents of national committees of ICOM submitted reports of their own which were collated in the final documentation.

The sixth ICOM General Conference, held in The Hague, in July 1962, devoted considerable attention to the problem, and the President of the ICOM Commission for Security delivered a paper summarizing the progress made to date.

But the findings of these studies were often shocking.

A NUMBER of countries reported using *no protective devices whatsoever* to guard their art treasures. Others listed inadequate or outdated methods which would present no real problem to a determined thief.

One of the most reassuring replies came from a museum in Vienna. A system of thirty signals is activated if any of the guards fail to report on a pre-arranged schedule. When the alarms sound the main doors close automatically, and local and federal police receive a "theft signal" by means of a direct-contact cable. However, the museum is forced to admit that the whole system is so expensive to operate that it is only used to protect the most valuable items. As the British point out, rather plaintively, "There are no alarm systems which combine high efficiency with low cost." The protection systems in the Louvre alone cost over $45,000.

The consensus of museum experts is that devices using electromagnetic fields are the most effective. Instruments such as television, radar and even infra-red detectors for night-time can give the kind of spatial coverage which protects large areas of the establishment by keeping them constantly in view. The images from such fields can be led to a central observation post, thereby simplifying the staff's job.

A museum in Columbia, South Carolina, which has delicate devices attached to every one of its pictures, reports that the paintings in one of its galleries are "touched" 85 times every day. These are not thieves but merely art lovers who cannot resist personal contact with a canvas which attracts them strongly—in the same way that one Rembrandt lover has always wanted to pick off that tiny point of white pigment that sits on the very end of the master's nose in the self-portrait which hangs in London's National Gallery.

The experts agree that a combination of systems is preferable, since a single device could be studied and overcome by a painstaking criminal or gang. It is also pointed out that all systems dependent on electrical power should have their own source of supply, since any interruption in the regular current would put them out of action.

An important consideration in any system should be the dispersion of the warning signal. Almost all authorities are agreed that in addition to the resident guard unit, the signal should go automatically to the police—preferably at a federal, as well as local, level.

THE mechanical techniques used in the protection of works of art are often obvious. Armour plating, pickproof locks, unbreakable laminated glass—all are in standard use, although rarely remarked by the museumgoer.

Few visitors to a museum are aware that they are constantly under surveillance through one-way glass strips which are often disguised as decorative elements in the gallery. But it is the "space-age" devices which are the more exciting.

An enterprising thief, who had otherwise avoided the devices elsewhere in the building, might find himself caught out by a special microphone which can be so adjusted as to "ignore" all other sounds except the noises peculiar to his tools—saws, hand-drills, blowtorches.

Certain instruments can be positioned so as to emit a continuous ultra-sonic wave. When a would-be thief breaks this wave, the resultant interruption activates an electric cell which signals the fact to the guards.

Most of the rugs in museums are wired. At closing time, the current is turned on and anybody who steps on the rug from that moment on closes a contact, sets off an alarm bell and floodlights the room.

The professional burglar who feels that he is on to an easy thing in exercising his craft in the realm of art, may find that as his blowtorch starts to cut through a steel plate he has caused a heat-sensitive detector to react. One of the most effective follow-up devices, in this case, is to have a charge of explosive set off by the detector, designed to throw the thief into a panic.

Close cousins to the ultrasonic devices are photo-electric beams, usually used in the daytime, and infra-red instruments for the night. All work on the principle of a field of waves which reacts to interruption.

Television cameras are highly practical aids to the modern museum. Either fixed or movable they can cover

CONT'D ON PAGE 10

* "Museum" Vol. XVII No. 4, 1964.

This notice, issued jointly by the Toronto Art Gallery and the Canadian Police, was circulated after the theft of six priceless paintings which were cut out of their frames during the night of 14-15 September 1959 and stolen from the museum. Doors of the museum were fitted with safety locks but not the windows, and one had been broken. Two weeks later the paintings were recovered.

REWARD

FOR THE RECOVERY OF PAINTINGS STOLEN FROM THE ART GALLERY OF TORONTO

On Tuesday, September 15th, 1959

REMBRANDT:
"Portrait of a Lady with a Handkerchief"
Oil on canvas, 49 x 39½

REMBRANDT:
"Portrait of a Lady with a Lap Dog"
Oil on canvas, 32 x 25¼

HALS:
"Isaak Abrahamsz. Massa"
Oil on canvas, 31⅜ x 25⅜

HALS:
"Vincent Laurensz. van der Vinne"
Oil on canvas, 25½ x 19¼

RUBENS:
"The Elevation of the Cross"
Oil on paper on canvas, 28 x 52

RENOIR:
"Portrait de Claude"
Oil on canvas, 16 x 12½

A substantial reward is offered for information leading to the recovery of any or all of these stolen paintings. Telephone or wire collect to

INTERPOL THEFT WARNINGS ALERT POLICE IN 95 COUNTRIES

UNESCO and the International Council of Museums (ICOM) have launched a campaign to make the museums of the world more security-conscious. In this work, they are being helped by Interpol, the International Criminal Police Organization. Interpol, neither a super police force nor an international detective agency, was founded in 1923 as a public service to prevent and check crime. At the request of ICOM, Interpol carried out the first world survey of alarm systems and other devices used to protect museums against theft. When a theft does occur, Interpol's own alarm system moves into action. From Interpol headquarters in Paris, full details of the stolen painting, sculpture or work of art are immediately circulated to the police services of some 95 countries. No fewer than fourteen different nations have notified thefts from museums, galleries or public monuments during the last five years. Map shows only thefts of publicly-owned works of art. It does not list losses from private collections or galleries. There are about 12,000 museums in the world today and they attract, between them, some 220 million visitors every year. This is why the problem of adequately protecting art treasures worries museum authorities as never before.

UNITED KINGDOM

1 Goya
1 Reynolds
1 Gainsborough
1 Raeburn

DUKE OF WELLINGTON by Goya, stolen from National Gallery, London, recovered in the left-luggage office of Birmingham station this year.

CANADA

QUEBEC

MONTREAL

TORONTO

32 paintings :

Rembrandt, Corot, Boudin, Monticelli, etc.

DEATH OF JACOB, by Rembrandt, sepia wash and pen, stolen from the galleries of the Montreal Museum of Fine Arts in October 1964. This drawing still remains untraced.

PERU

URUBAMBA
OCONGATA

11 paintings
(many thousands of art objects have been stolen in recent years from pre-Columbian burial sites).

NIGERIA

3 wood sculptures stolen from Illobu

FRANCE

BAYONNE
AIX-EN-PROVENCE
ST. TROPEZ
MENTON
PARIS

73 paintings : Cézanne, Picasso, Matisse, Dufy, Vlaminck, Signac, Foujita, Utrillo, etc.

THE CARD PLAYERS, one of 8 paintings by Cézanne stolen from the Aix en Provence Museum in 1961. Recovered in 1962.

SWEDEN

2 paintings : Utrillo, Frans Hals (or school of)

NETHERLANDS

ROTTERDAM
HAARLEM
AMSTERDAM
2 Rembrandt
1 Provoost

GERMANY

(Fed. Rep.)

1 Bertram
1 Wouwerman

AUSTRIA

34 sculptures stolen from ten different churches.
2 paintings.

BELGIUM

NAMUR
ANTWERP
BRUSSELS
GHENT
9 paintings
2 icons
1 Byzantine triptych

SWITZERLAND

CRANACH THE ELDER. This 16th Century portrait of Prince Johann Friedrich was stolen in 1961 from the Museum of Fine Arts in Basel, Switzerland. Recovered.

NEGRO HEADS, by Rubens, stolen from the Musée d'Art Ancien in Brussels on 16 February 1964. Painting was recovered on the next day.

GREECE

1 sacred book (12-th Cent.) stolen from the St. Denis Monastery of Mount Athos.

ITALY

ROME
PALERMO
TURIN
FLORENCE
MINTURNO
MARZOBOTTO
FERRARA
SYRACUSE
GROSSETO
ASCOLI PICENO
AGRIGENTO
NAPLES

100 sculptures and works of art
Frescoes (15th Cent.)
17 paintings, retables and triptyches.

This statue of an Ephebe stood two and a half feet high in the municipal museum of Selinonte, Sicily. In October 1962, it vanished mysteriously and is still on the missing list.

INDIA

16 bronze Buddhas

from the Nalanda Archaeological Museum.

14 statuettes stolen in August 1961, two more in March 1962.

Buddha 20 inches in height.

Qualified guards & electronic traps

a wide field, can be realigned from a distance by remote control, and enable a single man to watch an entire floor. Even more useful for purposes of identification *after* a theft, are photographic cameras which are set to film a forced entry automatically. Used mostly in night work, the cameras may be hidden and the criminal may not even be aware that he is being "recorded" for Interpol.

Any and all of these systems have, normally, both manual and automatic settings. They may serve to alert the guard force by alarms, lights, or the direct vision of a watching employee. They may also set off flares and smoke bombs to further confuse a thief.

It is natural that museum authorities are loath to divulge the types of devices they use. Even the makers of the instruments keep details of their manufacture a closely guarded secret and vary the designs frequently. Obviously, if a thorough criminal could find out what systems a given museum used, and could also study the devices themselves, his work would be enormously simplified. Secrecy about the entire subject is imperative—as anyone who has tried to discuss it with a museum security officer will know.

Museums, however, have every facility for finding out about protective equipment. Detailed and attractively designed catalogues are published by all the leading manufacturers of anti-theft devices, and each offers to send around an expert to advise a museum which equipment to use for its particular needs.

But as the Interpol-Unesco report stresses, "Mechanical devices alone are insufficient. The human being must be there." Bells, smoke, dye—sheet steel—none serve any purpose if the responsible museum staff cannot catch the thief. And if the men responsible are sufficiently well trained, the theft itself may never take place.

THE careful selection of able men (whose backgrounds can be checked) is an absolute requirement for any museum. The quality of the personnel using all these modern mechanical devices must be at least as high as the devices themselves.

The guards or watchmen must be thoroughly familiar with the layout of the museum. They must know of the presence of all security devices and how to operate them. Their patrols should normally be made at irregular intervals and they should follow different routes.

In at least one New York museum the guards hired are sworn into the regular police force and have all the powers and responsibilities that go with such a position. In the museum, there are a few of these security men whose job it is to mingle with the art-viewers, pass through the galleries with them, and even occasionally sit down with the crowds to rest their weary feet—but never their eyes.

According to Joseph Chapman, formerly with the United States Federal Bureau of Investigation and currently an international art "detective," the training of personnel should be systematic, covering the areas of direct physical intervention, warning procedures, and crowd control. He points out that in 1964 a trio of thieves was able to take the "Star of India" sapphire from its showcase in New York's Museum of Natural History because the staff had never been told of the existence of a contact alarm attached to the case—and had therefore not turned it on.

Mr. Chapman estimates that 40% of museum thefts are the work of men who have secreted themselves in the building while it was being closed down. They had thereby eliminated their first problem—that of entry— but the fact that they could do so is an indictment of the care taken by the guards in their final-closing inspection.

A well trained staff must be constantly on the alert for what is not visible, as well as for that which is. In one provincial museum in France, a sketchbook of Cézanne had lain open at the same page for some time before it was discovered that an enterprising thief had cut out all the pages from behind the two that were visible.

ALLIED to this alertness is the need for a staff to know exactly what the museum *does* contain, so that a theft can be spotted as soon as possible or, if worst comes to worst, an accurate description of the missing object can be broadcast. Most museums keep multiple records of all possessions. This precaution led to the downfall of one dishonest employee of an American museum in 1963. He carefully took all the records he could find on the objects he had stolen, but was unaware of a further set of records kept in a different place. This was enough to trip him up.

Museum authorities in India suggest that in addition to the normal records kept, a photographic file of every picture should be made, preferably more than one of each, and each file should be kept in a different locality—including a safe place outside the museum itself.

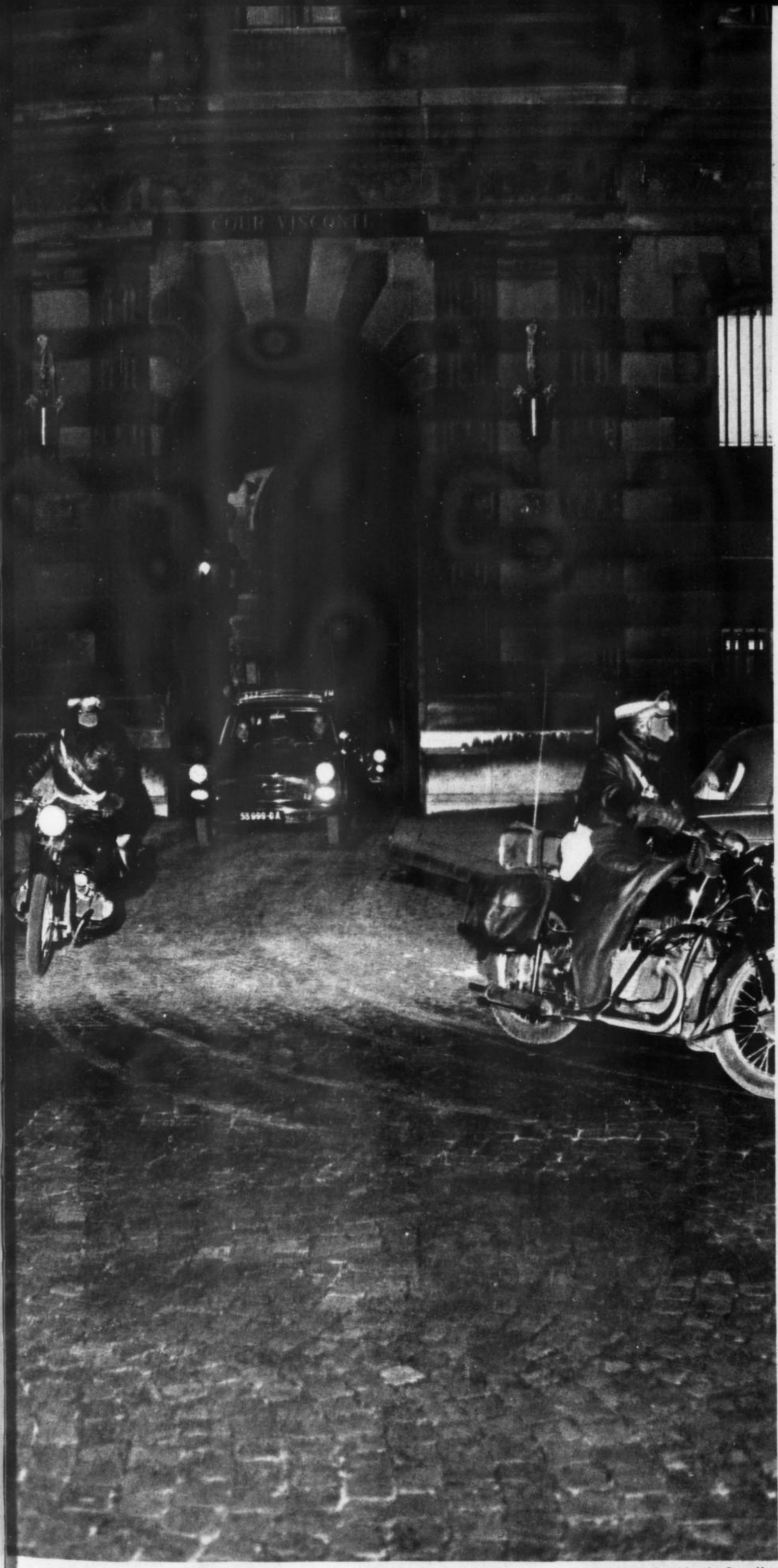
Overall responsibility for the security in a museum should rest in the hands of one man, Mr. Chapman stresses. Division of the load results in duplication of effort, and greatly increases the risk of a "hole" in the system which each person believes the other is responsible for.

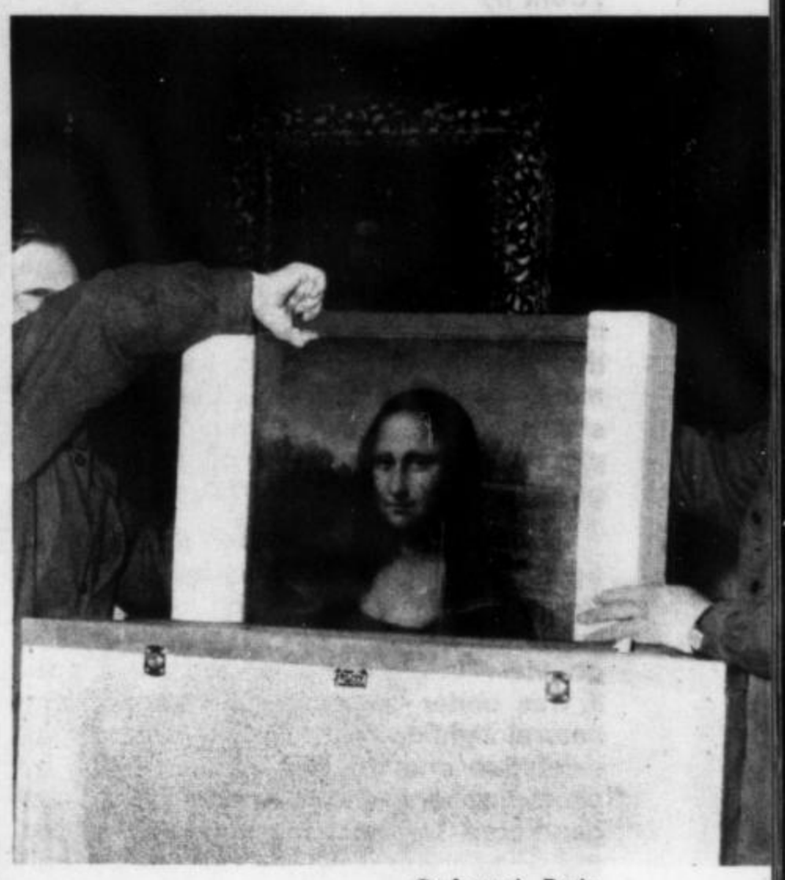
Mr. Noblecourt has this to say on the financial aspect of the problem : "... the need for (staff) quality involves extremely careful selection. In order to obtain the services of a picked staff who meet these criteria, it is important to make the posts well paid enough to attract and retain good men. All those involved are agreed upon the principle, but the same is not true of its application in practice.

"Some foundations or private institutions which are administered with an eye to profitability do not regard money devoted to ensuring the protection of the collections as unproductive ; the guards are therefore decently paid...

"We have thought it necessary to emphasize the primary importance of the quality of the human factor, for however efficacious material equipment may be, it must always be borne in mind that the value of a fortress is measured by the value of its defenders."

The *sine qua non* of the problem is the attitude of the authorities toward their responsibilities. With more than 220 million people visiting some 12,000 museums throughout the world, the problem has achieved vast proportions ; the range of protective devices is impressive—but they are expensive. Yet, as Mr. Noblecourt concludes, "Security is a field in which facts must be faced..."





© Agraci, Paris

Mona Lisa V.I.P. protection par excellence

ON December 14, 1962, in the dawn light of a winter morning, a motor car escorted by police pulled out of the Louvre Museum in Paris (photo left) and took the road for the port of Le Havre: one of the world's most famous paintings, Leonardo da Vinci's "Mona Lisa" was off to America. It was then exhibited for four weeks at the National Gallery in Washington and for a further month at the Metropolitan Museum of Art in New York, to hundreds of thousands of admiring visitors.

In arranging for the "Mona Lisa" to make this transatlantic voyage, the Louvre gave a demonstration par excellence of how to protect a work of art against every kind of danger. Technicians planned the operation down to the last detail. First, X-rays and large scale photographs were made of the painting. Then, removed from its frame, it was placed between blocks of nylon as a precaution against vibrations and packed into a case weighing 80 kilogrammes (187 lbs) specially designed to protect it against shocks and changes of temperature (above).

The Louvre had already had occasion to test the efficiency of similar air-conditioned containers when it sent paintings by Rembrandt to an exhibition in Vienna. Even the possibility of a shipwreck had been considered and to provide maximum safety for such a VIP passenger, the protective case had been made unsinkable! Six guards kept constant watch over the "Mona Lisa" which travelled in a reserved cabin fitted with a device to keep a 24-hour check on the temperature.

The "Mona Lisa," now over 450 years old, was brought from Italy to France by Leonardo in 1516. It was given its original name, "La Gioconda" because

Photo © Paris - Match, Courrière

MONA LISA
(Cont'd)

it is believed to be the portrait of the wife of an Italian, Francisco del Giocondo. Francis I of France bought it from Leonardo for 4,000 gold florins (a sum that now corresponds to $600,000), but its present-day value is inestimable. In 1911 it was stolen from the Louvre and was not recovered until two years later in Italy. In 1957 it was struck by a stone thrown by a vandal who was trying to mutilate it, but fortunately it suffered only slight damage. Since then it has been protected by a sheet of bullet-proof glass.

In 1962, when the French Government agreed to loan it to the United States, the conditions under which it was to be exhibited were specified in detail. While on view in Washington and New York it was under constant surveillance; only natural lighting was used throughout its exhibition and the use of flash bulbs by photographers was forbidden—the heat generated by them might have changed the temperature of the air-conditioned hall. As the voyage of the "Mona Lisa". proves, works of art can now travel great distances without serious danger of damage or deterioration, thanks to modern protective techniques. "Mona Lisa" returned to the Louvre in perfect health on March 12, 1963 after being seen by nearly 1,600,000 people in the United States.

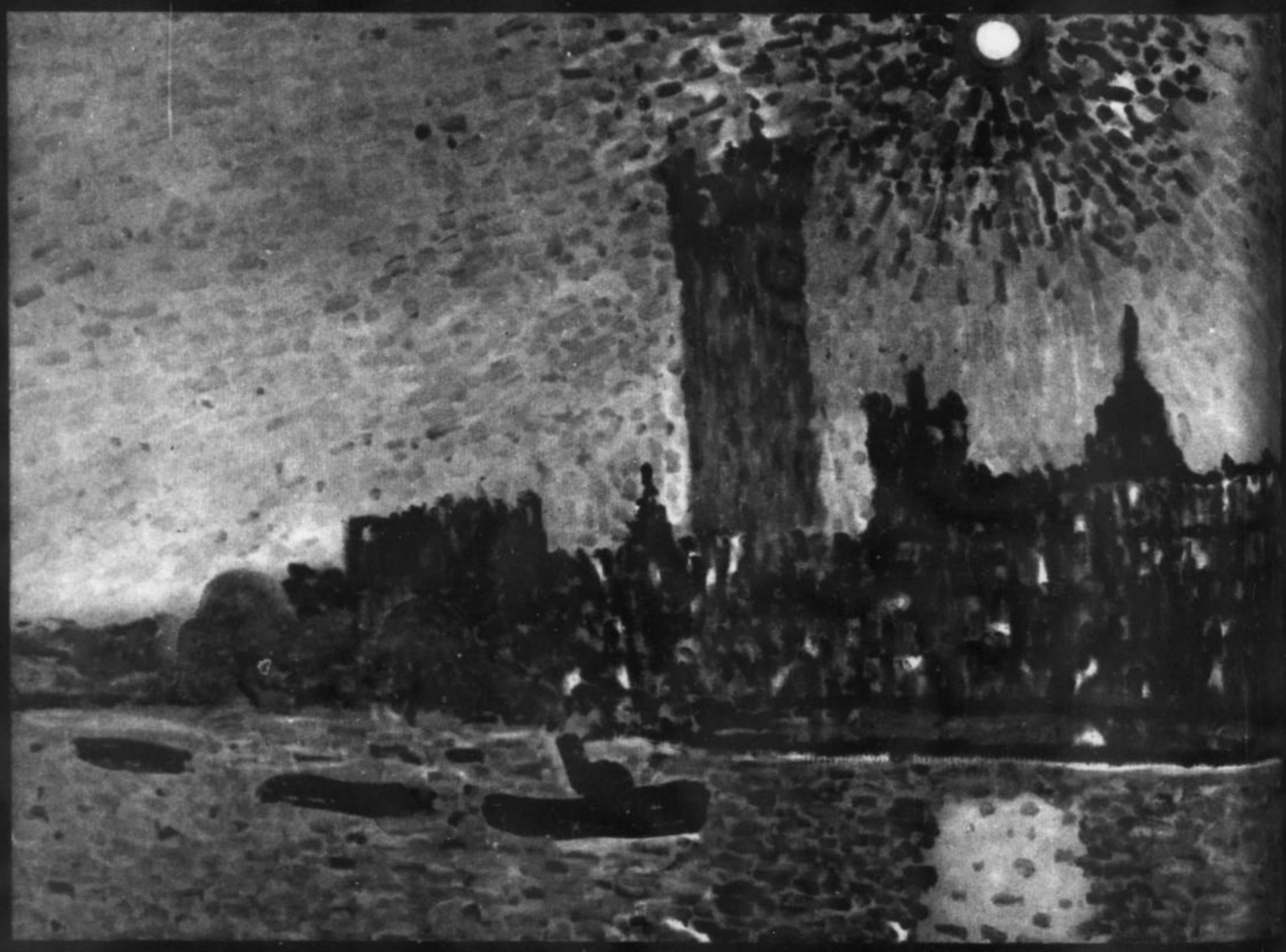
" Mona Lisa " in the National Gallery, Washington. Constant watch was kept on the painting by means of television cameras covering the entire hall. Image picked up by the cameras was transmitted to a central observation post. Above, during the night, one of the guards on duty keeps his eyes fixed on the masterpiece in the now empty hall. At the slightest sign of anything suspicious he can sound a general alarm. Left, crowds file past the " Mona Lisa ", guarded by armed sentries. As a further measure to facilitate surveillance, only a limited number of persons at a time were allowed into the hall.

Photos © Paris-Match

The Bay of St. Tropez (Dunoyer de Segonzac). The only one of 57 works stolen from the Annonciade Museum in St. Tropez in 1961 still missing.

The Jetty at Honfleur (Dufy)

57 oil paintings lost in a single robbery



Westminster, London (Derain)

THE cleaning woman who opened the doors of the Annonciade Museum at St. Tropez, on the French Riviera, on the morning of Sunday, July 17, 1961, got the shock of her life. The walls of the ground floor galleries were completely bare. During the night thieves had broken in and helped themselves to 57 paintings—well over half the total collection. The museum normally had a guard on duty at night but on this particular occasion he was absent, visiting a sick relative. Matisse, Bonnard, Derain, Vlaminck, Marquet, Dufy—the names of just a few of the artists read like a roll-call of giants in nearly half a century of French painting, from 1890 to 1935. The Annonciade Museum, in fact, was considered to have one of France's finest collections of modern painting, ranking, according to some authorities, in fourth place after the two great museums of modern art in Paris and the Grenoble Museum. This was the fifth art robbery to take place on the Riviera within a year. Almost all the works taken in the earlier thefts were recovered and many of the thieves were arrested. The Annonciade Museum eventually recovered all except one of the 57 paintings (the missing one is shown opposite page, top).

Woman at a Balustrade (Van Dongen)

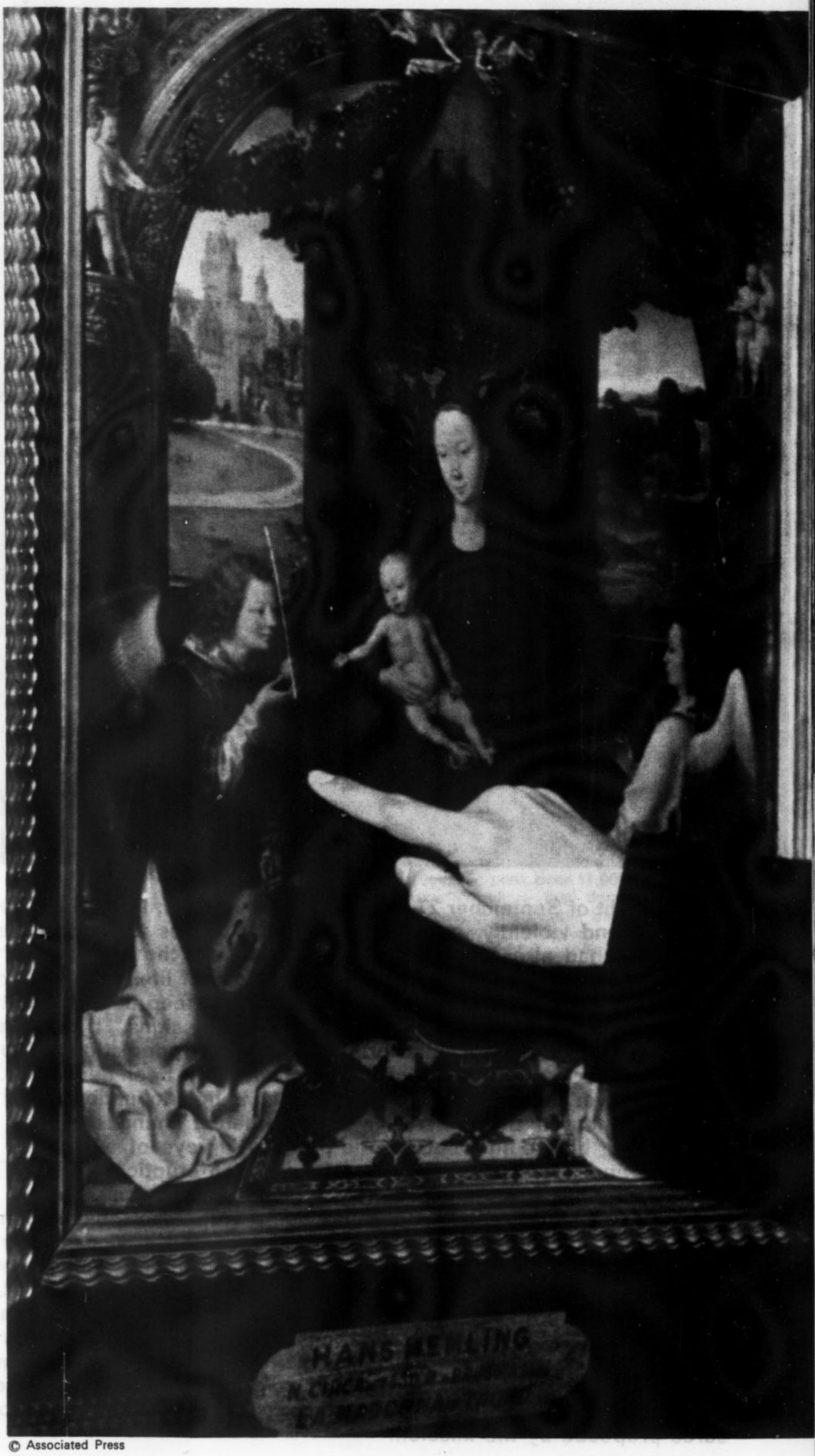
HAVOC WROUGHT BY VANDALS

© Associated Press

The Corcoran Gallery in Washington, thwarted the thief who tried to make off with this painting, Rembrandt's "Man with Hat Holding Scroll". The painting, however, was damaged slightly. Museum restorer here works on cut at bottom and right borders.

This Buddha at Pagan, Burma, was the victim of man's greed. It was completely disemboweled by vandals in search of gold they believed to be hidden inside. Most of the statues at Pagan are similarly mutilated.

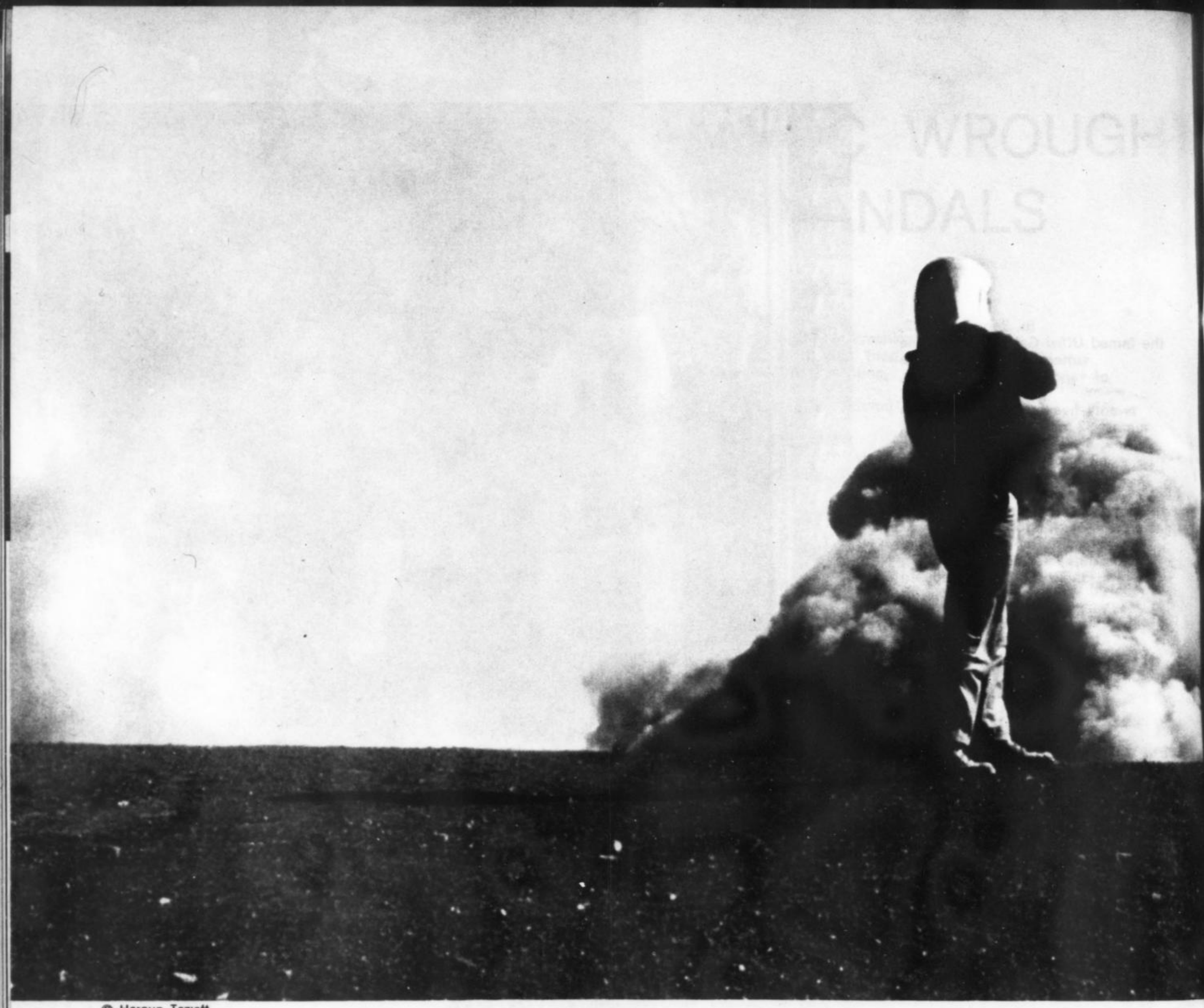
© J. Lavaud



© Associated Press

In January 1962, the famed Uffizi Gallery in Florence suffered its worst case of vandalism since the war. One morning, twenty-five masterpieces worth almost $2 million were discovered slashed and damaged, all apparently by the same deranged individual. Finger in photo points to long slash mark on 15th Century masterpiece of "Madonna Enthroned" by Hans Memling. Museums are now redoubling their efforts to safeguard their art treasures.

TO protect their works of art museums have to be constantly on the alert. Museums know this, but are often short of the material means to provide proper protection. A lack of surveillance, an excessive dispersion of guards and the result may be disastrous. Works of art may not only be left as relatively easy and tempting targets for the thief; they can also become the victims of vandalism of all kinds. In 1914 the splendid "Venus" of Velazquez in the National Gallery, London, was slashed through and through by a suffragette who chose this way to alert the public to the urgency of granting women's rights. In 1959 a mentally unstable person tried to slash a work by Rubens, "The Fall of the Damned", in a Munich museum. Two years later it was the turn of a Montreal museum to suffer at the hands of a visitor who, in a fit of destructive fury, damaged valuable works by Renoir, Daumier, Fantin-Latour, Monticelli and Coburn. Graphomaniacs are not satisfied with defacing public buildings and monuments. To protect the painting, "La Source", by Ingres from being defaced by these scribblers, the Louvre in Paris has been obliged to cover it with glass. Even true art lovers are sometimes guilty of minor misdemeanours. Delicate electronic devices attached to paintings in one museum reveal that they are touched anything up to 100 times a day. To add to all these problems, there is the omnipresent one of finance, for as yet there are no alarm systems which combine high efficiency with low cost.



© Haroun Tazieff

On the night of September 27, 1965, the Taal volcano, in the Philippines, erupted suddenly and violently, causing hundreds of deaths and widespread devastation. Taal had already erupted three times since the beginning of the century. Its last eruption in 1911 also caused heavy loss of life. The most recent catastrophe is one more reminder of the vital need to keep constant watch over volcanoes. Few eruptions fail to give some warning signs. If these are observed and interpreted accurately and promptly, the local population can be evacuated in time. Accurate methods of observation have now been developed. Principally, these involve: the recording of earth tremors due to underground movements of magma masses; the analysis of gases to detect changes in their composition which occur before an eruption; and precise surveys of a volcanic crater as it expands under the pressure of magma when an eruption is due. This last type of diagnosis has been used by the American geophysicist, Robert W. Decker, Last year he made repeated measurements with electronic equipment across the Kilauea volcano crater in Hawaii, and recorded a 30 centimetre expansion across its 4 kilometre diameter just before an eruption. Tellurometers, the instruments used, have an accuracy of one millimetre per kilometre. Unesco is actively developing a programme of international co-operation in volcanological research; since 1953 it has sent three missions to make on-the-spot investigations. In 1964, Unesco sent a mission to Costa Rica following the eruption of the Irazu volcano. This was led by the Belgian volcanologist, Haroun Tazieff, who describes below the special problems of Irazu and the warning and protective measures proposed by the mission.

"Volcanology is like medicine," says the famous Belgian volcanologist, Haroun Tazieff. "Before a doctor can give a prognosis, he has to know his patient. It is the same with a volcano: the better we know it, the greater chances we have of predicting its behaviour." In March 1964 a Unesco emergency mission led by Haroun Tazieff spent several weeks observing the "feverish" volcano of Irazu in Costa Rica. Bell-shaped helmet seen in this photo is the latest type of protective headgear worn by volcanologists. It can withstand the shock of a 60-pound weight dropped from 500 feet.

CONFRONTING THE IRASCIBLE IRAZU

by Haroun Tazieff

IRAZU, a volcanic peak over 11,000 feet high in the massive cordillera that dominates Costa Rica, lies fifteen miles east of the capital, San José. Since the day in 1723 when it awoke with fury, destroying the city of Cartago, then the capital of Costa Rica, it has erupted at least eight times.

Irazu had been dormant for almost half a century when it suddenly erupted on May 13, 1963. Huge clouds of volcanic ash shot skywards; the earth near the crater was blasted open for hundreds of yards and covered with several feet of ash. Nearly four miles from the crater ash soon lay a foot deep.

Yet the greatest threat to Cartago and nearby communities was not volcanic fire, but the combination of ash and water. Tropical rains can transform volcanic ash into a river of mud that sweeps everything before it—trees, rocks, house-sized blocks of lava—at the speed of an avalanche. This was how Herculaneum was buried during the eruption of Mount Vesuvius in 79 A.D. that also wiped out nearby Pompeii.

In December 1963 a mud-flow coming down the Rio Reventado on the slopes of Irazu advanced on Cartago eight miles away, and swept through its lower section, killing thirty persons and wreaking heavy damage.

Following this calamity, the Government of Costa Rica asked Unesco to send an emergency mission to Irazu in order to study with Costa Rican engineers and scientists the measures that could be taken to prevent a recurrence of the disaster.

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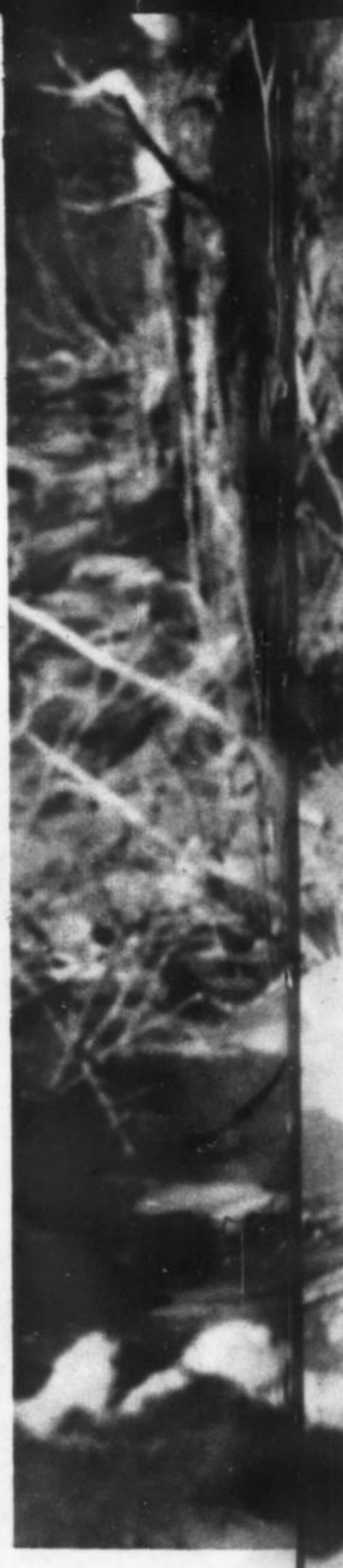
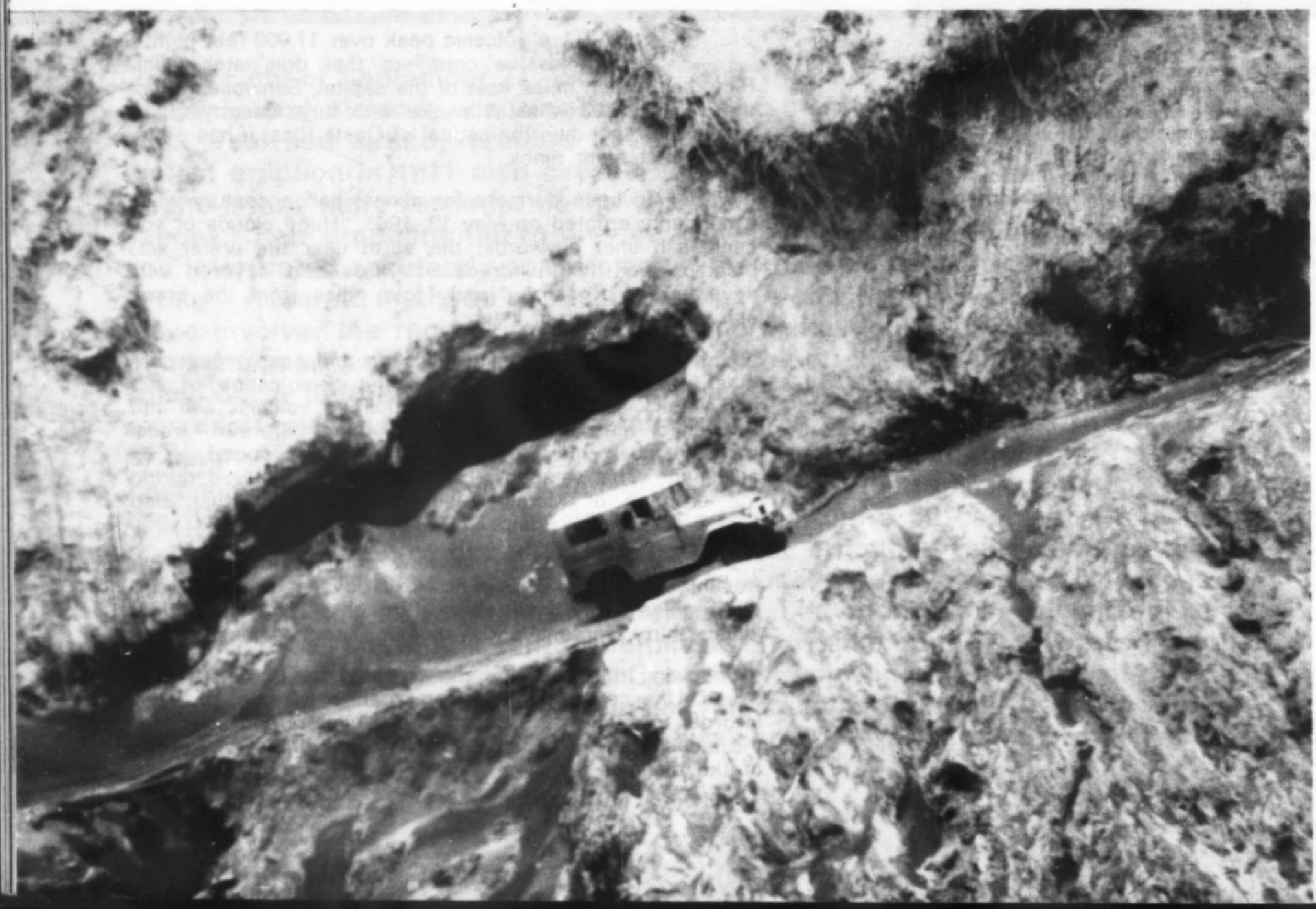
IRAZU *(Cont'd)*



A verdant landscape of woods and growing crops surrounded the volcanic peak of Irazu until May 1963 when vast clouds of smoke and ash began to belch forth from the volcano (left, still in eruption in February 1964). Vegetation of all kinds has since disappeared beneath the deadly rain of ash (right) which covers everything within a range of 12 miles and in places is several feet deep. With the arrival of tropical rains, the mass of ash becomes a sea of liquid mud, forming torrents which slide down the slopes, sweeping all before them. Below, a jeep used by the Unesco mission to Irazu follows a narrow track cut into a desolate mountainside.

Photos © H. Tazieff



Deadly rain of ash

In February 1964 we were entrusted with this volcanological mission to Irazu.

The Costa Rican Government was eager to know how the eruption that had been going on since May 13, 1963 was likely to develop. The crater was throwing out vast quantities of ash (fresh liquid lava and old solid lava pulverized by the explosions) which was jeopardizing the coffee crop—Costa Rica's chief economic asset—and to some extent was perturbing the life of San José, the capital.

Was the discharge of ash going to continue, intensify or cease? How great a risk was there of a sudden violent explosion that might endanger the communities around the volcano?

Such questions were difficult to answer, in the first place because the present state of volcanology does not permit accurate forecasting either of the intensity or duration of an eruption. Secondly, in this instance the absence of previous studies meant that even an approximate forecast was out of the question.

Volcanic forecasts—often very reliable concerning the start of an eruption—are based on changes in certain chemical and physical factors, essentially the composition of gases, their temperatures and pressures, the nature and depth of volcanic disturbances, the nature of microseismic tremors, the tilting of the ground and so on. But it is not yet possible to forecast the duration of an eruption in progress.

The Costa Rican Government placed at the disposal of the mission two jeeps fitted with radio transmitter-receivers; a tracked vehicle without radio; a fixed radio transmitter-receiver; a petrol driven power unit for charging batteries; two banks of accumulators and a volcanic bomb-proof shelter which was installed in a trench dug at our request through the rim of the crater.

This shelter, the first volcanic observatory to be set up on the American continent, was constructed of semi-cylindric steel sections placed end to end and covered with earth. Entrance to it was gained through a doorway at the valley side of the trench, while two windows, protected by sliding timber shutters, looked out on the crater side. The whole was erected speedily and efficiently by the Costa Rican Institute of Electricity, to which the members of the Unesco Mission would like to express their gratitude.

Once completed, this observatory-shelter became the base station. A seismograph, installed in a concrete pit, and generally functioning 24 hours out of 24, was connected by cable to a pen-recorder placed in the observatory. A

CONT'D ON NEXT PAGE

FIRST OBSERVATORY-RE

Protection against heat, explosions, showers of debris and other hazards of a volcanic eruption has always been a major problem for the volcanologist. Here, on the rim of the Irazu crater, engineers of the Costa Rican Institute of Electricity

IRAZU *(Cont'd)*

The big killer: avalanches of mud

radio station was set up in the observatory by the Telecommunications Service of the *Guardia Civil*.

The mission then set up two mobile seismological stations by placing a set of instruments—seismograph, amplifier, recorder and chronostat—in each of the radio-equipped jeeps. These mobile stations were used to locate the exact position and depth of the earth tremors.

This part of the programme was at first seriously hampered, partly by difficulties with the radio-telephone links, and partly by noise interference picked up in the populated areas where the mobile stations had to be sited. Several nights had to be spent in trying to reduce such interference to a minimum, and this additional work caused extreme fatigue, for during this time it was vital to maintain the daily recordings and observations.

During the six weeks it spent in Costa Rica, the seismological team used six miles of recording paper for its seismograms. This enormous volume of data was analyzed immediately it had been recorded, thanks to the devotion of the experts who often worked 18 to 20 hours per day. It was thus possible to provide the government with a day-to-day record of the seismic activity of the volcano during that period.

The first studies of the volcano and its activity showed that there was little immediate danger of a paroxysmal explosion—though the possibility of it happening in the future could not be excluded—or of an outflow of lava.

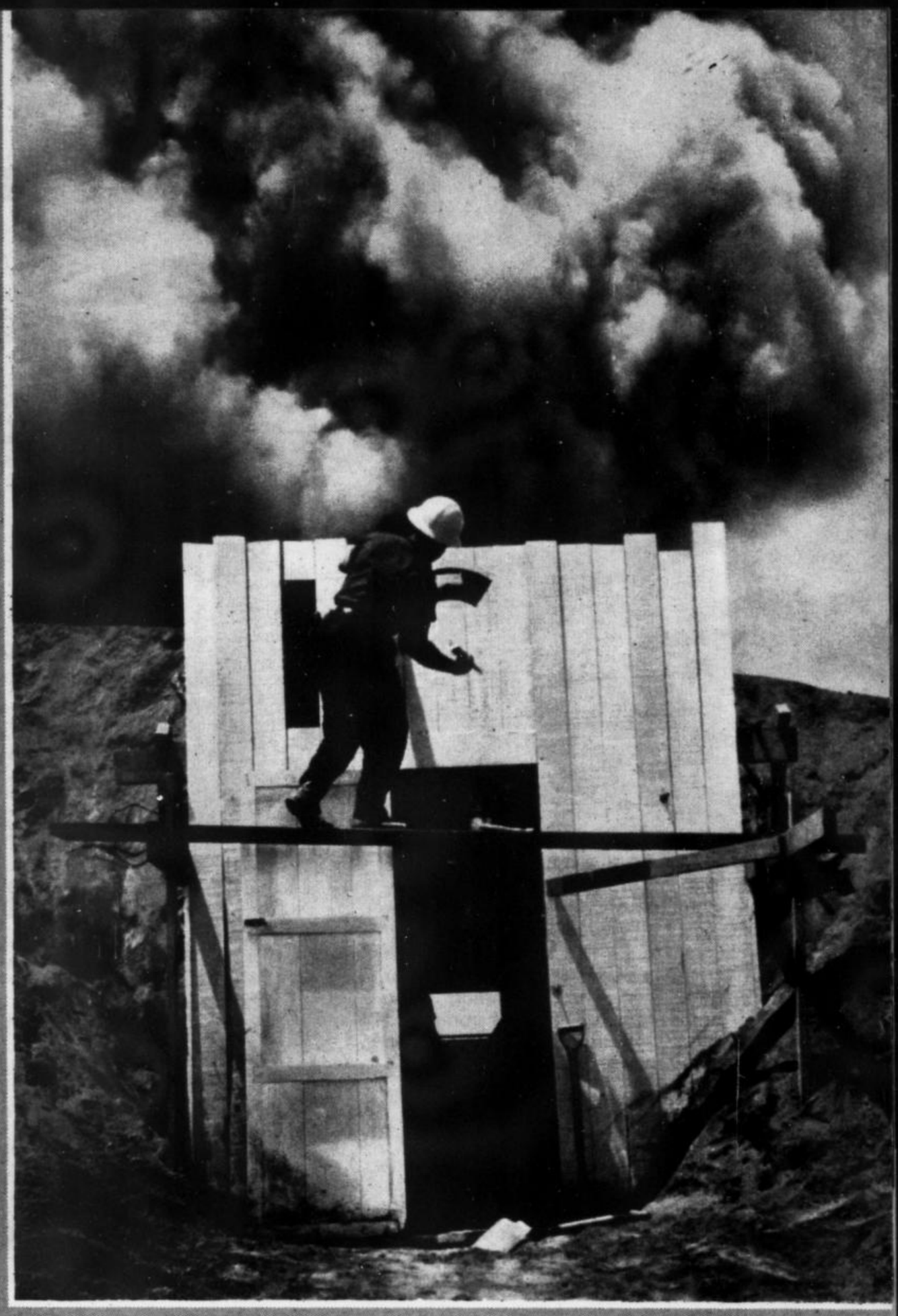
However, there was a definite and very serious risk for the whole area lying on the leeward side of the volcano —in relation to the prevailing winds. The danger was from torrents (or avalanches) of volcanic mud, known also as "mud-flows", or *lahars*. It is difficult to understand why this danger is everywhere so seldom realized, for on the average, *lahars* cause greater losses of life and property over the whole world than outflows of lava or volcanic explosions.

Lahars can either occur during the violent phase of an eruption, due to the sudden melting of snow or ice by the glowing lava or, in the case of a volcano with a crater lake, through the ejection of the water (sub-lacustrine vol-

REFUGE IN THE AMERICAS

build a volcanic bomb-proof shelter of reinforced steel sections covered with earth for the Unesco mission. Photos show stages in the construction of this armour-plated volcanic observatory—the first to be set up on the American continent.

Photos © H. Tazieff



canic explosion). They may also be caused by the effect of rain falling on the thick layer of ash, sand and dust that has accumulated on the slopes during an eruption.

It was the third cause with which we had to deal at Irazu. By the time we arrived in the district the dry season had already lasted two months, during which the eruption had neither diminished nor changed in nature. Immense quantities of ash, with no rain to wash them away had gradually accumulated on the lee side of the crater. Although stable when dry, such a mass does not remain so when wet, and it seemed inevitable that heavy downpours during the rainy season would create torrents of mud capable of devastating the inhabited areas on the slopes and at the foot of the volcano.

Our exploration of the slopes at Irazu showed that the thick layers of ash had built up chiefly in the upper valleys of the rivers Durazno (to the west), Tiribi (south west), Reventado (south) and to a lesser degree the Taras (south east). Ash also covered the northern and western slopes of the volcano, but the danger here was less because the forests had not been cleared for pasture to the same extent as towards the south.

On the southern slope the danger was greater because of the lack of vegetation and the effects of previous erosion. There would thus be few obstacles to slow down or halt the progress of mud-flows once they had started.

Less than 30 per cent of water is enough to transform dry volcanic ash into liquid mud. As a mud-flow builds up and surges to the bottom of a valley, its initial volume is swollen with debris of all kinds and sizes that the mud sweeps along with it: trees are uprooted, rocks and stones are torn away from the sides and bottom of the valley. It has been found that a *lahar* may increase its volume sixfold in this way.

While it remains in the higher part of the mountain this mass is contained by the deep ravines, or *quebradas*. These, however, usually peter out suddenly where the slope decreases near the foot of the volcano. At this point the mass of the *lahar* suddenly spreads out like a

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Giant sandstone baboons over six feet high (right) topped the facade of the great temple of Abu Simbel until they were cut into blocks last August. For 3,000 years they were the first figures on the façade to be lit by the rays of the sun as it rose above the hills on the far side of the Nile. The dismantling of the Abu Simbel temples must be completed by August 1966; to reconstruct them on higher ground will take until May 1970.

Photos Unesco-Nenadovic

DISMANTLING ABU SIMBEL

by Louis A. Christophe

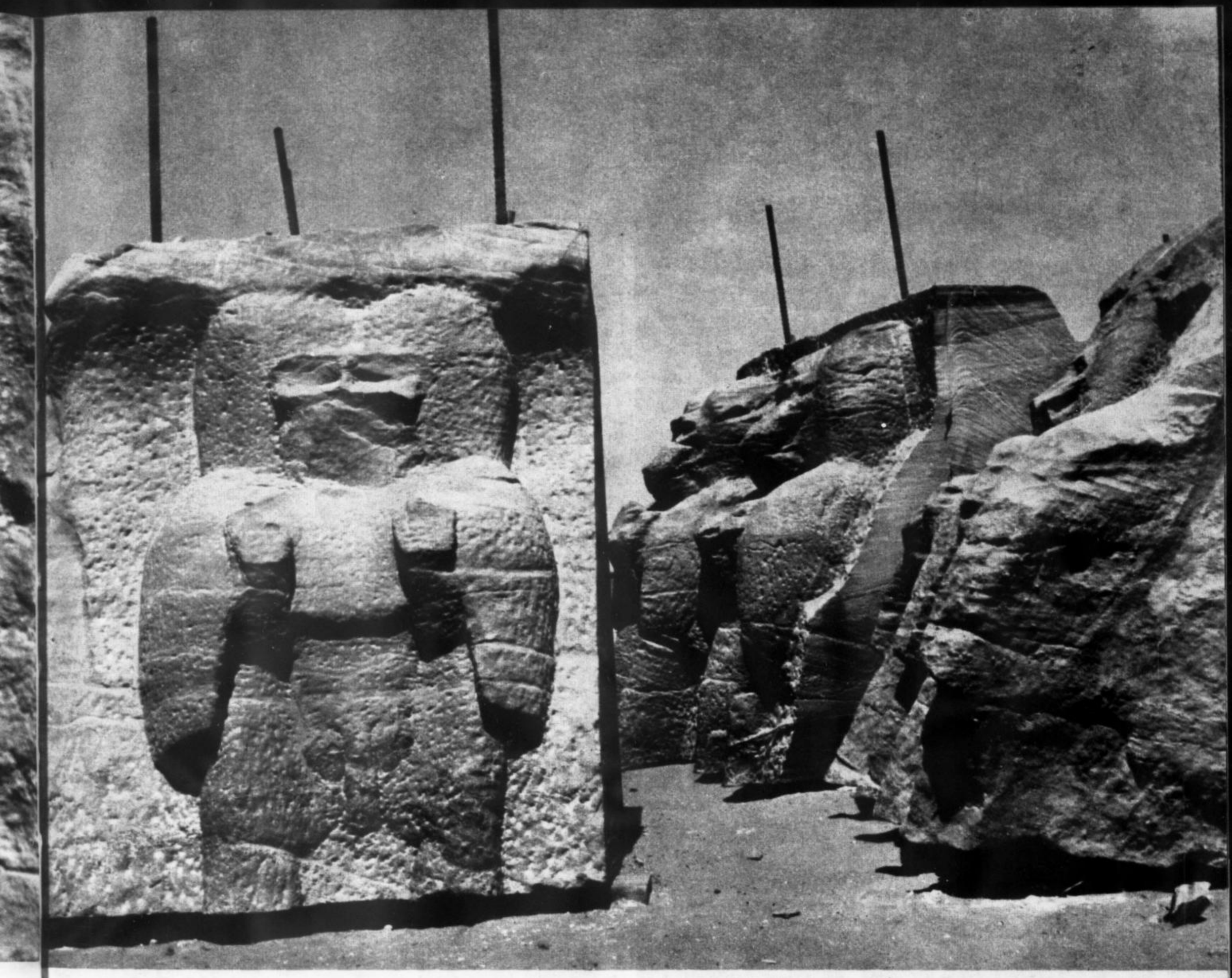
THE dismantling of the great temple of Abu Simbel has begun; 300,000 tons of rock have been removed; the hill above the temple has been excavated. On the façade the frieze of baboons and the hieroglyphic inscriptions beneath it have been cut into blocks. Last August, the ceiling of the sanctuary was removed and for the first time light from above shone down on the gods seated in the darkness within.

The operations at present proceeding at Abu Simbel—the first of their kind in the world—have but one object: to save intact for posterity two unique monuments. These have to be transported, block by block, to a position near the original site but higher up so that the waters rising behind the Aswan High Dam can never reach them.

The initial stage of the work is nearing completion. It began with the separation of the two temples from the hillside out of which they were hewn, by removing the entire mass of surrounding rock. This called for precisely calculated protective works: the reinforcement of the façades by sandhills as a precaution against damage being caused to the statues by falling blocks of stone, and the installation of scaffolding to support the ceilings in the interior of both monuments.

Indeed, there is no denying that for the returning traveller the remembered charm of Abu Simbel has vanished. And this first sad impression is in no way mitigated by the spectacle of the sandhills which cover the façades, by the long laborious walk through the long metal tunnel leading inside the monuments and by the sight of the complicated network of scaffolding which fills the various halls.

But when reason finally triumphs over emotion, everything immediately becomes clear. The coffer-dam, some 400,000 cubic metres of rockfill material whose crest now



rises 135 metres above sea level, is there to remind us of the danger which threatened this historic site. Had this coffer-dam not raised its protective mass before the temples of Abu Simbel, they would have been submerged and damaged during the winter of 1964-65, and perhaps some of their treasures—the Osirian pillars with their huge statues in particular—would already have been destroyed.

The great temple is now completely separated from the mass of rock which surrounded it and, in August 1965, the first ceiling, that of the sanctuary, was cut into three blocks, each weighing from 15 to 20 tons. These blocks were lifted by a giant crane and deposited not far from the site where they will be put back in place next year. A trench is now being dug behind the sanctuary to facilitate the cutting of the walls of that hall and of the four seated figures that are its main adornment.

On the façade, other blocks have likewise been cut away with infinite precaution and stored: first, those directly surrounding the sculptured part, the pylon of the monument, which is to be used again in the reconstruction so that the framework will consist of the original stone; then those of the façade itself—the frieze of baboons, the cornice and the hieroglyphic inscription just below the baboons. By the end of August, the work had reached the horizontal torus and it was planned to make an early start on cutting up the top of the crown of the huge statue seated at the south end of the façade.

The removal of the mass of rock from above the small temple was begun much later and has just reached the series of blocks which will be used again when the temple is re-erected. However, since this monument is smaller than its neighbour, it will be easier to cut up and work will begin in the near future, even before all the blocks of the great temple have been transported, on reassembling the pieces of the small temple on the site now being prepared for it.

In fact, as one climbs from the river bank to the plateau towering over the temples of Abu Simbel, one passes through a series of work-sites. Below, men are cutting into the living rock; above they are levelling off sites for the new foundations of the two monuments; nearby, travelling cranes are busily storing away the huge stone blocks which are brought up several times a day by special trailer lorries.

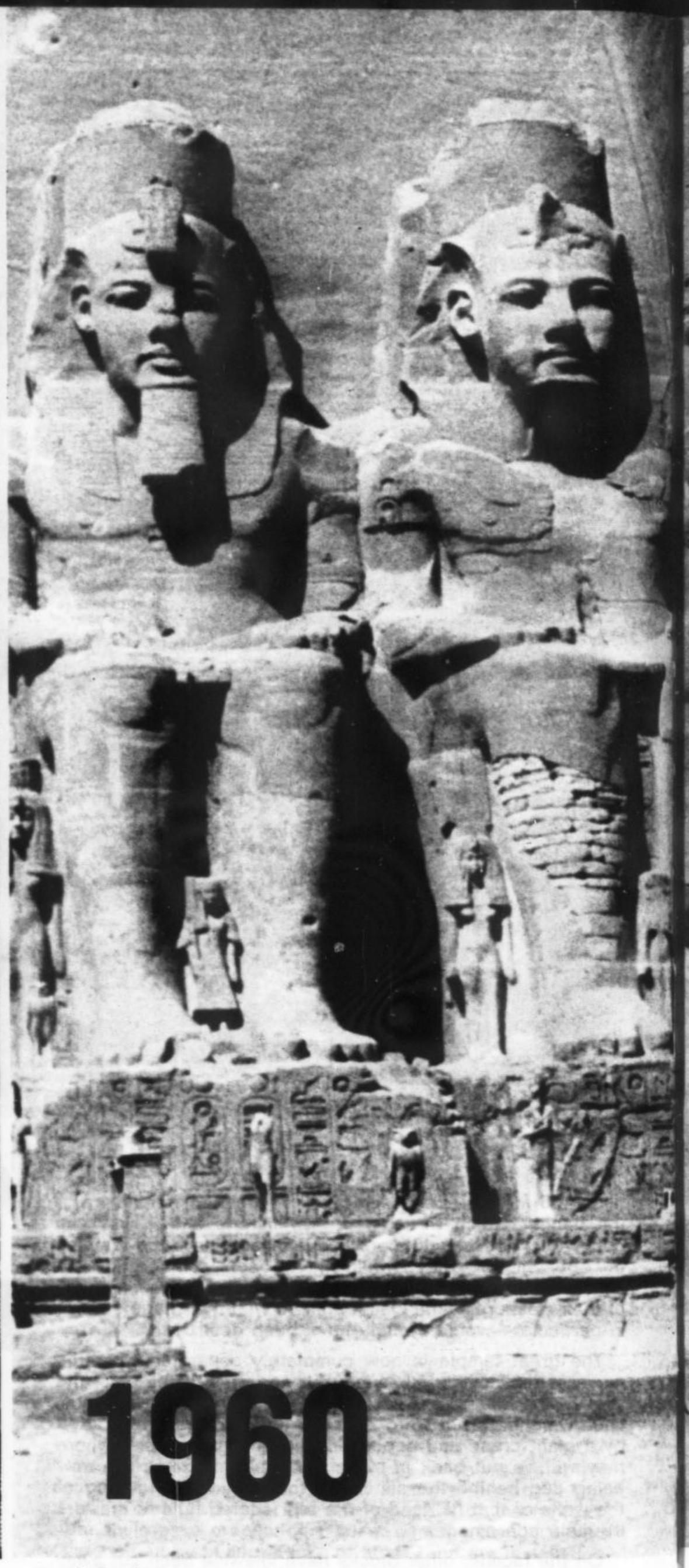
These different centres of activity, where workmen labour for twenty hours out of the twenty-four, are linked by a network of asphalted roads. These roads also lead further south to a village—by now almost a straggling town—which is nearing completion. Workshops and equipment stores have sprung up near the work-sites as well as installations which supply water and electricity. A little further away are offices and homes (the engineers often have their families with them) built around a dining hall and a club, where a swimming pool is now being constructed.

In front of these simple, rectangular houses built in Nubian style, alluvial soil—brought up from the river bank when the lake was at its lowest level and just before the beginning of the flood season—has been laid down to

CONT'D ON PAGE 29

Unesco

The façade of Abu Simbel as it appeared in the spring of 1850 to the French writer, Maxime du Camp, who took this daguerreotype—the first photograph ever made of the temple. The colossi were half hidden by a river of sand flowing down the hillside. Abu Simbel was probably invaded by sand during the XXVI Dynasty, 2,500 years ago.



Unesco-Laurenza

The statues of Rameses on the northern side of the temple entrance as seen for half a century. The huge sand dune which had half hidden the temple was not completely cleared until 1910.

The rise and fall of t

Photos Unesco-Nenadovic

Bulldozer covers the façade with sand to protect the giant statues of Rameses during the dismantling operations. These are scheduled to be completed in the autumn of 1966.

History appears to be repeating itself. Only the heads of the colossi emerge from the man-made sand dune, as they did in 1850. Since September 1965 the statues of Rameses have been completely hidden from sight and the frieze of baboons above them has now been cut up and removed. (See drawing next page.)

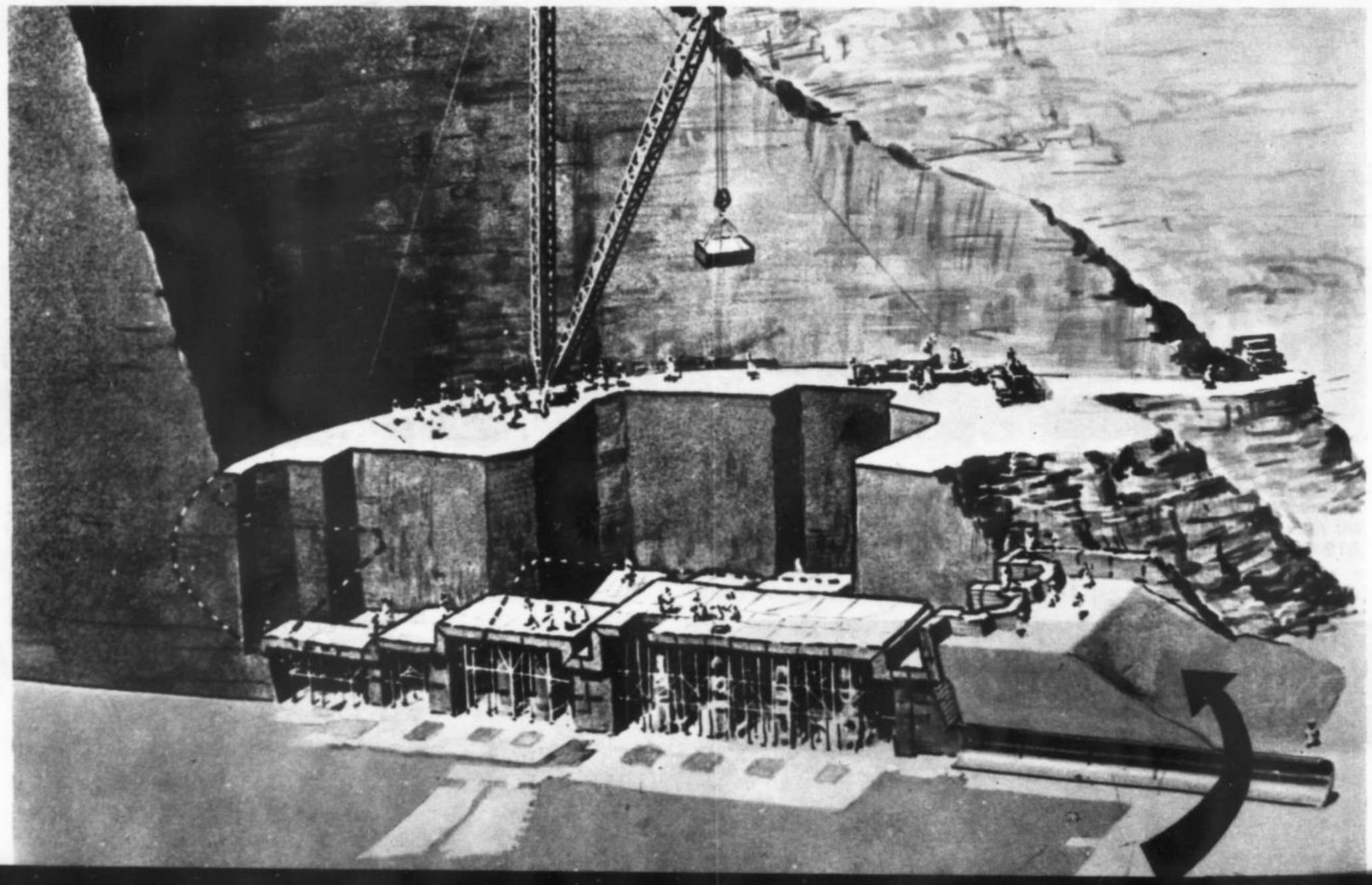
ll of the Nubian sands

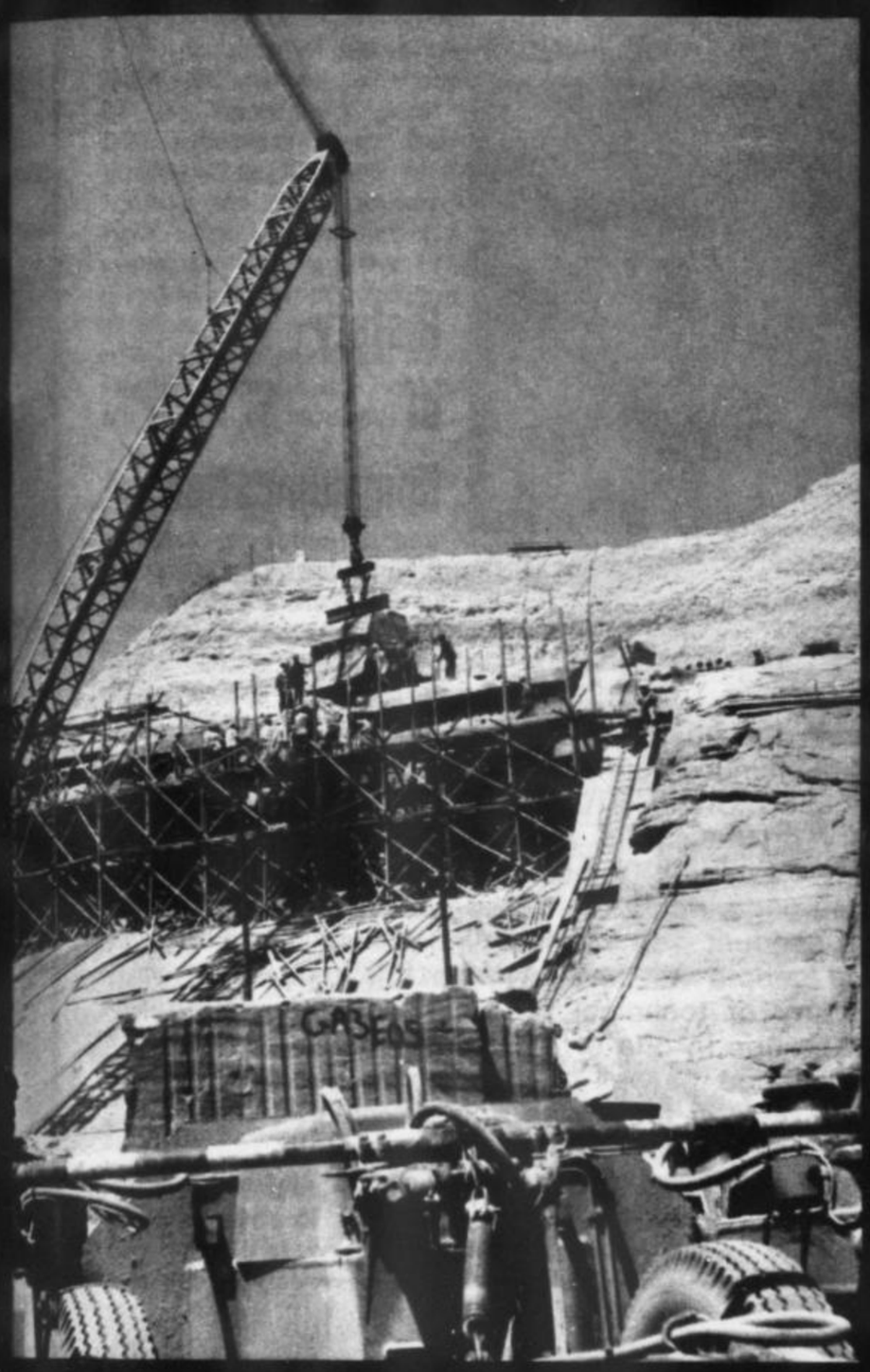
From left to right, hieroglyphic inscription on upper façade of the great temple at Abu Simbel is split into huge blocks. Left, hand saws, not power tools, are used for this operation. Blocks are numbered (foreground, centre photo) and stored to await temple's reconstruction on hilltop. Far right, section is gently lowered to giant transporter. It bears the graven inscription: "Rameses, beloved of the gods".

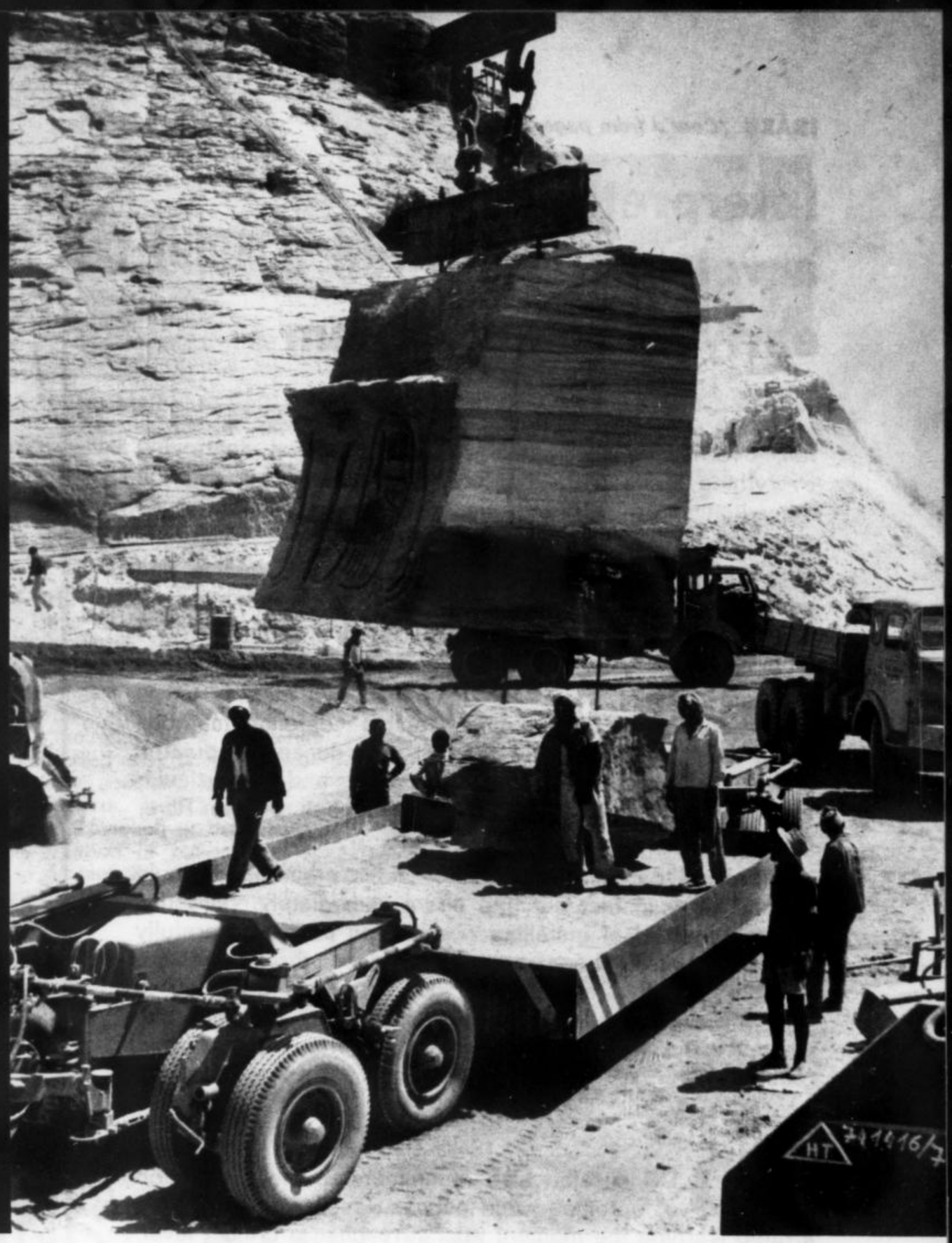
Photos Unesco-Nenadovic

Drawing VBB, Stockholm

Architect's drawing gives section view of great temple during dismantling operations. Arrow marks emplacement of colossal statues of Rameses II on façade of the Great Temple of Abu Simbel, totally covered with sand as a protective measure. Temple has been completely separated from mass of rock around it. Statues surrounded by scaffolding are Osirian pillars of the first hall. Last September, sanctuary ceiling was cut into three blocks each weighing between 15 and 20 tons.







DISMANTLING ABU SIMBEL *(Cont'd)*

receive shrubs and flowers. Finally, beyond the hospital, the round-roofed houses of the workmen hide the runway where light aircraft land every day, maintaining rapid communication with Aswan.

The desert-like plateau, which was once the exclusive domain of scorpions, snakes, jackals and hyenas, is now a place of bustling activity, full of the constant movement of squads of workmen, transport lorries, mini-buses carrying foremen and engineers, and motor cars taking the key men in this vast enterprise to points where the most delicate operations are going on. Here, as elsewhere in Nubia, birds are rare; they all seem to have flown away to more fertile regions. There is only a flock of vultures at the western edge of the village, attracted from no one knows where by the cries of the animals at the slaughter-house.

In scorching summer heat and during the near-freezing nights of the Nubian winter, engineers, foreman and labourers are working without respite to save the temples of Abu Simbel from the threatening waters.

By the end of 1966, when the reconstruction of the smaller temple will be well advanced, the first blocks of the great temple are to be fitted into place on the new site. And two or three years later, visitors to Abu Simbel will have the surprise and pleasure of seeing that a dream has become reality. The waters of the Aswan High Dam will again mirror the majestic facades of the temples, behind which, rebuilt exactly as before, the monuments will stand within the heart of a man-made mountain.

This monumental achievement of modern times recalls symbolically one of the noblest of the Osirian legends. As the story is told, Set, being jealous of Osiris, imprisoned his brother in a chest, and to gain undisputed sway over Egypt, killed him, cutting his body into twenty pieces which he cast into the Nile. Isis, the wife of Osiris, searched along the river until she found the twenty pieces and was able to reconstitute the body of her husband. After undergoing the magic rites of embalming, Osiris ensured his succession on earth through his son, Horus, before descending to the underworld to become the god of the dead.

In like manner, thanks to the international campaign launched by Unesco, the temples of Abu Simbel will rise again in all their ancient majesty.

LOUIS A. CHRISTOPHE, *Assistant Secretary-General of the Institut d'Egypte, was appointed by Unesco in 1960 to supervise the work of preservation of the Nubian monuments in the UAR. He is the author of many papers on ancient Egypt and has just published a book on Abu Simbel (boxed note below).*

The Discovery of Abu Simbel

Since the day on 22 March 1813 when the Swiss Traveller Johann Burckhart stumbled upon the temples of Abu Simbel deeply buried in the sands, the monuments of Rameses II have had a long and eventful history. Their many adventures form the subject of a new book by Louis A. Christophe "Abou Simbel et l'épopée de sa découverte". An English translation of the work is in course of preparation. (Published under the patronage of Belgium's Queen Elizabeth Foundation of Egyptology and with the co-operation of the Belgian Ministry of Education and Culture. Editions P. F. Merckx, Brussels, 1965. 35.50 French francs; 395 Belgian francs.

Interpreting a volcano's early warning system

fan, overflowing the banks of the river and destroying everything in its path—not only by flooding, but through the tremendous battering-ram blows given by the rocks and tree trunks it carries along.

To meet this danger two types of defence—active and passive—can be adopted. Active defence consists of diverting or deepening river beds, building dams or, as a long term measure, drainage and reafforestation.

In the case of Irazu, with less than two months to go before the onset of the rains, "active" defence methods could have done no more than protect densely populated places that were specifically threatened, and in particular the city of Cartago on the lower reaches of the River Reventado.

"Passive" defence techniques, on the other hand, could be and were in fact put into effect immediately. Broadly, these consisted of installing observation posts at carefully chosen points. These posts functioned throughout the 24 hours, and were equipped with apparatus designed to give the alarm, at any moment of the day or night and whatever the weather, as soon as the warning level was reached.

OUR mission also recommended the installation of automatic rain gauges which would transmit a radio warning the moment rainfall reached a critical level. We also suggested that automatic gauges be placed in the ravines to alert the authorities to an excessive rise in the water level.

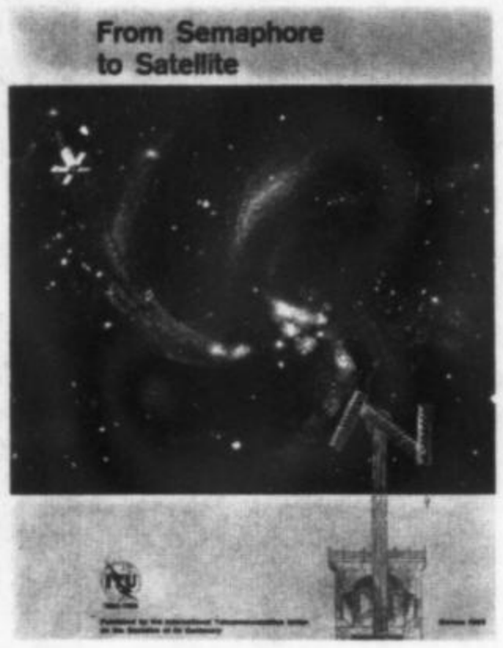
This warning system had to be supplemented by careful planning of the orderly evacuation of the people in the threatened areas in case of an alert at any time of the day or night.

Finally, arrangements had to be made for the eventual rehousing of people whose dwellings might be destroyed, and road maintenance carried out so as to provide alternative escape routes to the main road, whose bridges, like those carrying the San José-Limon railway, were threatened with destruction.

The Costa Rican government decided to give effect to the measures recommended by the Unesco Mission, which can consider that its goal was achieved.

As it happened, two months after the departure of the mission, the first *lahars* occurred at the start of the rainy season. Only one life was lost whereas without the warning system the death roll would have been heavy—almost certainly numbered in hundreds.

HAROUN TAZIEFF, *Belgian geologist and volcanologist, is the author of many scientific studies on volcanology and works for the general reader. English-language editions of his books include : "Craters of Fire", Hamish Hamilton, London, 1952; Harper, New York, 1954; "The Orion Book of Volcanoes", Orion, New York, 1961 (Volcanoes, Prentice-Hall, London, 1963); and "When the Earth Trembles", Hart-Davis, London, 1964; Harcourt, New York, 1964. Haroun Tazieff has produced several prize-winning scientific and documentary films on volcanic eruptions.*



History of Communications

To mark the hundredth year of world co-operation in telecommunications, the International Telecommunication Union (ITU) has published a popular history of the media since the beginning of telegraphy. Entitled "From Semaphore to Satellite" the 340-page, richly illustrated book offers a fascinating account for readers in all walks of life. Young people will find in it the full experience of a century of technical progress and international collaboration in one of the most exciting branches of knowledge, as well as the promise telecommunications offer in the space age. Available through bookstores or from ITU, Place des Nations, 1211 Geneva 20, Switz. in English, French or Spanish (40 Swiss Frs. or US $9.50).

WORLD CONGRESS S

THE first World Congress of Ministers of Education on the Eradication of Illiteracy, which ended September 19 in Teheran, addressed a unanimous appeal to the United Nations, its specialized agencies (particularly Unesco), regional bodies, non-governmental organizations and public and private foundations to help finance a movement to eradicate illiteracy which currently blights 44 per cent of the world's adult population.

Among the most important points stressed in over 80 recommendations adopted by the 88 countries attending, were the following:

Firstly, delegates from both industrial and developing countries have recognized that illiteracy is truly a world problem. Delegates from the more advanced countries have offered aid mainly for training teachers specialized in literacy techniques.

Secondly, the need to integrate literacy fully into economic development has now been unanimously accepted. This does not mean, as several delegates observed, that education should be regarded as important solely in economic terms. It is also the leaven of cultural and intellectual growth and a means to make every person aware of his rights and duties as a citizen.

Thirdly, delegates agreed that the conflict between schooling for children and adult literacy is actually a false dilemma. In fact, both are necessary, the former being a long-term investment and the latter a short-term investment with immediate impact on national development. This is why adult literacy must be integrated into national economic planning to the same extent as the development of the educational system as a whole.

The congress gave its full backing to Unesco's experimental literacy programme and particularly to pilot projects for which financial help has been requested from the United Nations Special Fund. Some delegates asked that this programme be extended and the number of pilot projects increased.

Mr. René Maheu, Unesco Director-General, declared that Special Fund's proposals were realistic and could be handled by the

MUSEUMS OF THE FUTURE. The training of personnel to better appreciate the place of museums in the life of the community was proposed by the 650 participants at the meeting of the International Council of Museums (ICOM), held at the Metropolitan Museum of Art in New York in September. Delegates to the meeting criticised the present approach to training and approved the Secretary of the Smithsonian who said: "Museums must establish themselves as essential and top -rank educational institutions equal to... all levels of educational activities".

MONUMENT PRESERVATION. A society for the preservation of historic and cultural monuments has been founded in the Federal Republic of Russia in the USSR. Some 30,000 monuments have been catalogued so far. The new society will eventually comprise a network of municipal, regional and national organizations.

PREHISTORIC FLOODS. A new theory that the ancient cities of the Indus flood-plain were gradually engulfed by mud is advanced by R.H. Raiker, writing in the September 1965 issue of "Antiquity", the British quarterly review of Archaeology. Mr. Raiker, a hydrologist, cites recent fieldwork at Mohenjo-Daro to support his hypothesis.

THE FIRST RAZOR? Radio carbon dating of charcoal discovered with an ancient bronze razor during excavations in the Chichen-Ingushetian Republic of the Northern Caucasus, makes it probably the earliest piece of shaving equipment known. The razor is between 10,000 and 13,000 years old.

From the Unesco Newsroom...

SOVIET STUDENTS. More than 3,500,000 students are now studying at Soviet colleges and universities — an increase of some 250,000 over last year's figure. Only 370,000 of the 836,000 first-year students are studying full time. The others are taking evening classes or correspondence courses.

GONE WITH THE VICUNA. In common with many other animals, the vicuna is threatened with extinction. The vicuna is a ruminant related to the llama, that roams in herds over the higher mountains in Peru, Bolivia and Equador. Its wool is delicate and soft and, although it is a protected animal, it is estimated that tens of thousands are killed by poachers every year. A meeting of experts, held recently in Peru to study the protection of the vicuna, counselled the creation of national parks and reserves to protect the surviving herds and the formation of experimental breeding stations.

INTERNATIONAL RESEARCH IN BIOLOGY. A proposal for an international laboratory for fundamental research in biology has been endorsed by an expert committee of seven leading biologists meeting in Paris. But the committee recommended that if such a laboratory were founded, it should be Europe-oriented, at least for the first few years of its existence. The Paris Committee included three Nobel Prize winners—Prof. Severo Ochoa of New York, Dr. Max Perutz of the Medical Research Council (United Kingdom) and Dr. Peter Medawar, director of the London Institute of Medical Research—as well as distinguished biologists from France, Belgium, Italy and the Soviet Union.

BOOKS IN BRITAIN : In the item entitled "Giants of Publishing" (page 15, Sept. 1965) the United Kingdom was not listed as third amongst the world's six largest producers of titles of books. In 1962 the U.K. published 25,079 titles as compared to 21,904 in the U.S.A. In 1963 the number of book titles in the U.K. rose to 26,023 and that of the U.S.A. to 25,784. The United States is rapidly catching up with Britain in the number of titles published each year.

CORRECTION : In our October issue we omitted to mention that the article "Science, a New Social Force" by Mikhail Millionshchikov was an abridgement of the address delivered by the chairman of the U.S.S.R. Pugwash Committee on Science and World Affairs at the United Nations in New York earlier this year.

SPURS FIGHT AGAINST ILLITERACY

Unesco secretariat. At the same time, he asked the Special Fund to consider the possibility of increasing its effort for literacy. He made it clear, however, that the problem of financing mass literacy work will depend upon the extent to which nations concerned succeed in integrating literacy campaigns into their development plans. Each country, he said, must come to a sovereign decision concerning the relative importance it wishes to give literacy in these plans. In this way, the financing of literacy should become part of the general financing of development.

In this context the congress also asked the U.N. and its agencies to exert their influence on all responsible leaders to:

1) ensure that literacy is an integral and essential part of every development plan in countries where illiteracy is a problem;

2) increase, as far as possible, the national and international resources devoted to the fight against illiteracy;

3) make possible the provision of additional resources for development in general and literacy in particular as further funds become available following a reduction in military expenditures;

4) harness fully all information media to progagate the new concept of adult literacy.

CERTAIN developing countries expressed their intention to increase funds devoted to literacy. Others stated they had already reached a maximum figure which could not be increased without running the risk of seriously disturbing their national economy.

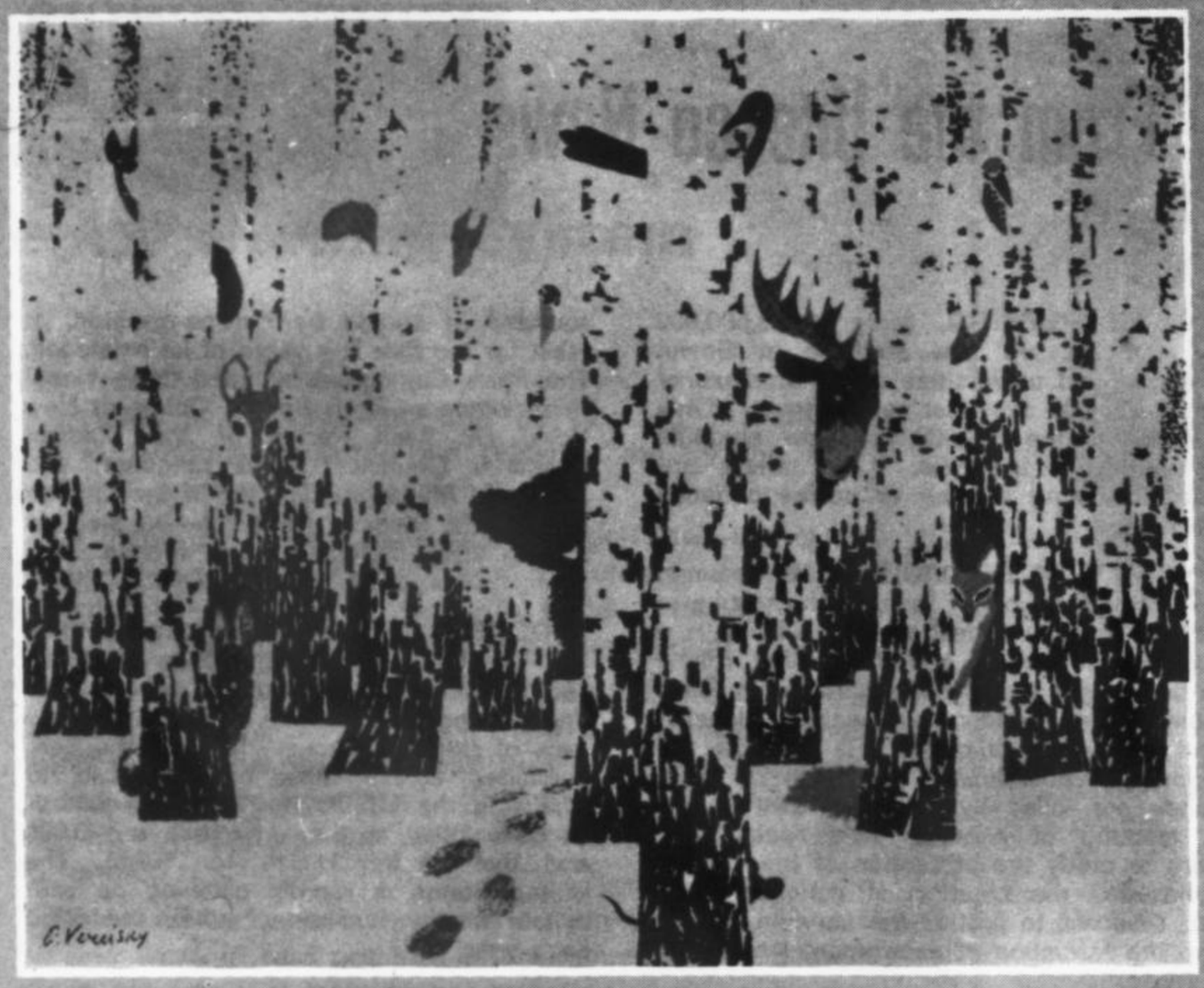
The congress also agreed that large-scale but spasmodic attacks on illiteracy, despite the enthusiasm they may have aroused, have not prevented thousands of adults from lapsing back into illiteracy. This is why delegates placed a priority on functional literacy conceived in conjunction with vocational training. In this respect, as many of them explained, every country cannot adopt the same strategy: this must vary depending upon social and economic structures, traditions and overall national goals.

Concerning public opinion, the congress stressed the need to bring home to illiterates the reasons behind any literacy drive. Strategy alone cannot make such a drive succeed, warned Mr. Maheu, if it is not galvanized by public opinion. "It would be impossible to carry out a large-scale campaign without mobilizing public opinion," he said.

In discussing literacy methods, delegates from several countries where many languages still have no written alphabets announced they have recently been able to devise alphabets for these languages. Others, on the contrary, appealed to linguistic institutes for help in finding solutions.

During the closing session of the congress, Prime Minister Amir Abbas Hoveyda of Iran announced that an annual prize will be placed at Unesco's disposal to reward a person, or institution, making a contribution in the field of literacy. Then Mr. Maheu stressed the importance of the congress which marked decisive progress in a field of ideas important to Unesco. Equally important, he added, was the remarkable unanimity with which delegates adopted a strategy for national and international action. He stated: "From their deliberations has emerged a new concept for concerted means for large-scale action. Illiteracy can be wiped out in a relatively short time if all those who seek to further progress in developing countries will aid literacy as an integral part of development. This is true for bilateral programmes, it is also true for international programmes."

The congress, convened by Unesco upon the initiative of the Shah of Iran, was opened by the Shah on September 8. "The existence of an enormous mass of illiterates [is] the root cause of the inequality which splits mankind into two separate segments," the Shah declared in opening the congress, adding, "it is a constant menace to social peace [and] to peace itself." The Shah then proposed that all nations help finance literacy by making small deductions from their military budgets.



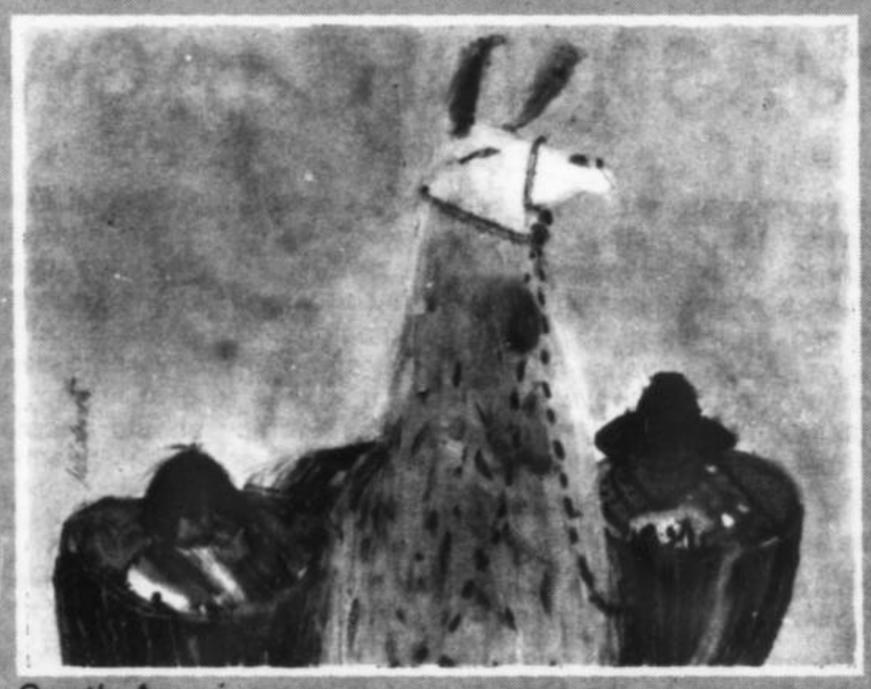
"Fairy Tale" by the Soviet artist Oreste Vereisky, whose skilful illustrations have enhanced many books, including Nobel Prize-winner Mikhail Sholokhov's epic work "And Quiet Flows the Don."

UNICEF GREETING CARDS

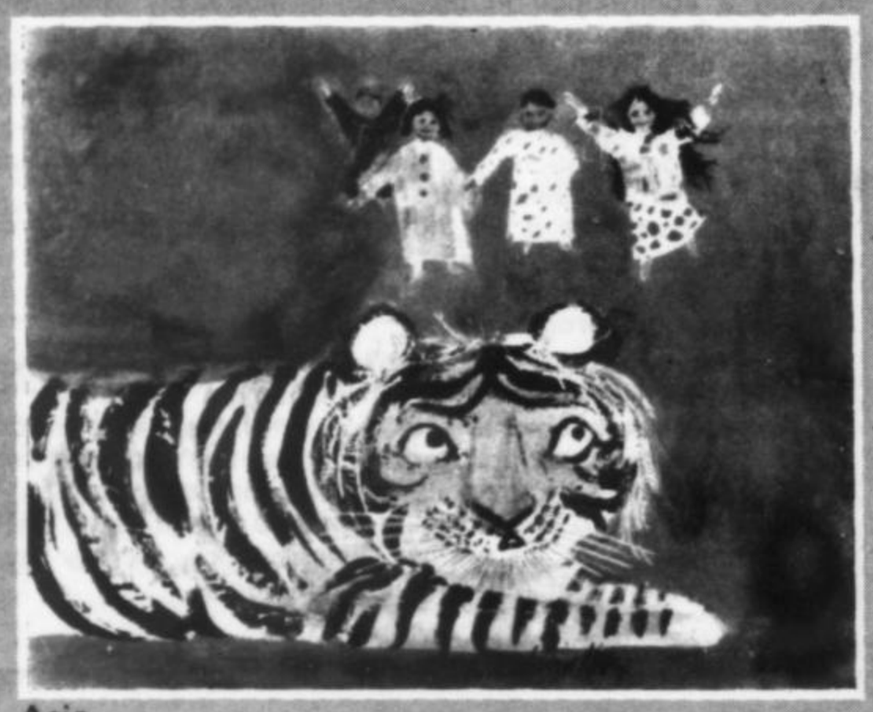
This year, "Unesco Courier" readers will find a wide choice of designs among the 19 greeting cards which UNICEF is putting on sale for the 1965-66 festive season. Each year the sale of greeting cards enables UNICEF to help needy children in over 100 countries. In this way UNICEF last year raised $2,400,000; this year it hopes to sell 40 million cards. Fifteen artists from all parts of the world have contributed this year's designs: Papa Ibra Tall (Senegal—see page 2); Brian Wildsmith (United Kingdom); Beni Montresor, Mario Topi and Paolo Tomasi (Italy); André Bouquet and Louis Toffoli (France); Yaroslava Mills, Hope Meryman and Andrew Wyeth (United States); Oreste Vereisky (USSR); Maria Vall (Spain); Christian Larsen (Denmark); Shalom of Safed (Israel). This year's cards include the water colour design which the French painter Raoul Dufy donated to UNICEF in 1952. It depicts UN Headquarters in New York and is being reissued to commemorate the 20th anniversary of the founding of the United Nations and to celebrate International Co-operation Year. We reproduce here some of the new UNICEF greeting cards.

"Dreaming of Christmas" (right) by Christian Larsen, a young Danish book illustrator and poster designer.

Africa



South America



Asia

Australia

World of fancy

Brian Wildsmith, a British artist, is one of the world's most stimulating illustrators of children's books. For UNICEF he has done five designs entitled "A World of Fancy" featuring favourite animals of children on all the continents. Painted in warm colours, they reflect the fantasy and excitement of a child's imaginary world.

Europe

Above, "Playtime", a design in colour lithography by Hope Meryman, a young American artist.

UNICEF cards come in boxes of ten priced at 7/6 (U.K.); $1.25 (U.S.A.); 7 F (France). Large format cards (design by Andrew Wyeth) cost 15/-; $2.50; 12 F. For further information (free illustrated full colour brochure is available) and orders write to the following addresses: U.K. Cttee. for UNICEF, New Gallery Centre, 123 Regent St., London W.1.; U.S.A. Cttee. for UNICEF, United Nations, New York, N.Y. 10017; Canadian Cttee. for UNICEF, 737 Church St., Toronto 5, Ont.; Comité Français pour l'UNICEF (section cartes de vœux), 24, rue Borghèse, Neuilly-sur-Seine, France.

Please do not address orders for cards to Unesco.

Letters to the Editor

YOUTH NOT YEAH-YEAH

I have just finished reading your July-August issue—the special youth number. I was pleased to see that, after reading those excellent articles, the older generation will at least know that some of us have other thoughts and aims than those generally attributed to the youth of today. All we hear about are juvenile delinquents and the yeah-yeah set. But besides these, there are other young people who have to find their place in contemporary society. It was also a good idea to stress that today's youth is not completely selfish. We try to help those who need assistance as in the case of the international work-camps, which have so many supporters.

Cécile Clément,
Périgueux, Dordogne
France

MAHARAJA JAI SINGH

Sir,

We are not only surprised but shocked to know that in the June 1965 issue of the Unesco Courier the Prince Jai Singh II has been described as a powerful Muslim ruler.

The Maharaja described as a prince is Maharaja Sawai Jai Singh II who ruled over Amber from 1699 to 1727 A.D. He shifted his capital in 1727 A.D. to Jaipur after carefully and systematically planning the city, and ruled till 1743 A.D.

Anybody acquainted with the history of the Muslims and Rajputs (Hindus) would not have been confused. The rulers of Amber and Jaipur have always been Hindus.

The Royal House of Jaipur traces its history from Lord Rama, who had two sons—Lava and Kusha. Since the family descends in direct line from Kusha the clan is known as Kushwaha. They in the begining ruled over Ayodhaya, then shifted to Gwalior and Narwar, then to Dausa, later to Ramgarh and finally to Amber which was annexed from the Mina clan chief.

Jaipur is not sixty but 191 miles from Delhi. Maharaja Sawai Jai Singh II is not the last Muslim ruler, but ruled during the time of the last powerful Mughal ruler—Aurangzeb.

The only astronomical observatory in the Amber territory was at Jaipur, which was built while Mohammad Shah the Mughal Emperor was ruling over Delhi.

The other places where the remaining four observatories were built were all in the Mughal territories as Sawai Jai Singh was siding with the Emperor at Delhi.

Maharaja Sawai Jai Singh was one of the most outstanding rulers of Jaipur. He was a great scholar, a fine politician, a shrewd diplomat, an expert architect and town-planner, a capable mathematician and astronomer, a fearless soldier and an able general; therefore, his name will go down to posterity as the builder of a kingdom and the founder of a civilization.

He came to the throne of Amber as a very young man in 1699 and at a period when the foundations of the great Mughal Empire, built by Akbar, had already started shaking, before crumbling to pieces after the death of Aurangzeb. The Maharaja had great foresight and tact. He very well realized the approaching changes. He anticipated an era of peace and prosperity and therefore decided to have a larger kingdom, expanded his territories and made himself powerful.

Once this ambition was fulfilled he gave serious thought to having a new capital for his state, because Amber was surrounded by hills and could not be expanded nor could it become an ideal capital of the Kachwaha Raj, as contemplated by him. After ruling and thinking for twenty-eight years at Amber and making additions to the Amber Fort and building Jaigarh Fort and Sudarshangash Fort (now known as Nahargarh), he decided to have a new city in the plains.

The foundation of the new city, named after the Maharaja, was laid in the year 1727. There are various stories to account for the regular plan of the city. One is that the observatory was the first thing made and that the Maharaja, following his mathematical bent, had the city laid out with mathematical precision. Another account is that Constantinople was taken as a model and yet another that the Chandni Chauk at Delhi gave the Maharaja his idea. Whatever might have given him the inspiration, the result has been to produce a most striking and remarkable city.

The Maharaja built astronomical observatories at Jaipur, Delhi, Mathura, Banaras and Ujjain. For himself he built a palace at Jaipur which occupies one seventh of the total area of the originally planned city.

Maharaja Sawai Jai Singh fought many battles and was always successful because he had the resourcefulness of Caesar and Hannibal, the shrewdness of Napoleon, the political sagacity of Pitt the Younger, the taste for learning of Vikramaditya and the planning of Vishvakarma. Thus by his genius he extended the prestige of the Kachwahas throughout the country and his voice commanded great influence at the Imperial Court and also in Rajasthan.

His court was adorned by nine gems who had shed lustre by their great achievements in various spheres of human activity. Rajamal, the Prime Minister; Rao Kripa Ram, the ambassador at Delhi; Pandit Ratnakar, the preceptor; Samrat Pundarik, the Purohit; Panna Miyan, the Nadir; Pandit Vidyadhar, the town-planner and architect; Rao Dalel Singh of Dhula and Deep Singh of Kasli, two famous generals; and Juovierde - Silva, the famous Portuguese astrologer.

Maharaja Jai Singh persuaded the Mughal Emperor to abolish the hated Jazia tax and was the first ruler of Jaipur to get the title of Maharajadhiraj Raj Rajendra and the rare distinction of "Mahi Maratib". He was the only ruler who performed the Ashvamegha Yagna.

Col. James Tod, the diplomat and traveller, writes, "The astronomical studies of Maharaja Jai Singh were wonders of the age. The observatories which he erected in the early 18th century at Delhi, Mathura, Ujjain, Banaras and Jaipur are monuments which irradiate this dark epoch of the history of India. He attached himself to no particular school but studied Hindu, Muslim and European methods impartially."

To sum up, in the words of the English writer, Arthur Garrett: "Jai Singh, firstly revived Hindu astronomy and gave such an impetus to its study as had not been known in India since the time of Brahma Gupta in the 7th century: secondly he promoted the study of mathematics, history and learning and collected a large library; thirdly he issued a revised star catalogue, reformed the calender and produced a set of tables of the sun, moon and planets of greatly increased accuracy; and lastly, he has left to us the most important record of all, viz. his instruments."

In the book "The Discovery of India," Jawahar Lal Nehru, writing about Jai Singh and his planning, states: "The City of Jaipur was so well and wisely planned that it is still considered a model of town-planning... Jai Singh would have been a remarkable man anywhere and at any time."

Jai Singh was really a remarkable man and a ruler who shall never and should never be forgotten.

Sangram Singh
Director
Maharaja of Jaipur Museum
Jaipur, India

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CONFRONTING THE IRASCIBLE IRAZU

Irazu is one of Costa Rica's most formidable volcanic peaks. It has erupted nine times in the past 250 years (1723, 1726, 1822, 1844, 1847, 1882, 1917, 1920 and 1963). In 1964, a Unesco scientific mission led by Haroun Tazieff made an on-the-spot study of this irascible giant (see page 18).

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